Telephony.

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SOME OPINIONS AND COMMENTS ON CURRENT TELEPHONE TOPICS

Chicago is getting ready to boast of having a million telephones. Of course, Chicago seldom brags—not much—about its achievements, but it will be forgiven for doing a little chirping when it enters the million-telephone class, for that is a tremendous gain when it is remembered that back in World's Fair time there were less than 10,000 telephones in the city. A 100-fold increase in 37 years is stepping some even for Chicago.

* * * *

At the beginning of 1930 Chicago had 988,000 stations. With only 12,000 more to go, the chances are that the million has already arrived, and we have been expecting the Illinois Bell company to celebrate the occasion any day now with an appropriate flourish of trumpets. Probably the company finds it hard to decide just what prominent citizen is to have the distinction of getting the millionth telephone. It is not likely to be "Big Bill," the mayor, who hasn't much use for additional telephone service right now. Neither is it likely to go to Professor James Weber Linn of the University of Chicago who says the telephone company is a "public futility."

Who is to get Chicago's millionth telephone? It's a tough problem.

It is estimated that Chicago has three telephones for every 10 inhabitants. The census takers are not through counting the people yet, but on the basis of 3,300,000 population the total number of telephones figures out about that ratio.

The local company handles an average of 4,305,550 calls a day in the city of Chicago and nearly 21,000 toll and long distance messages a day, not to mention the fact that Chicago is a large user of transatlantic service, as its cosmopolitan people make frequent calls to European countries.

These facts are merely recorded in passing, so to speak, for, as we all know, Chicago is not given to bragging—at least, not much.

* * * *

Telephone rate hearings in New York and Ohio have finally been finished, and it is now up to the commissions of those states to hand down decisions. The New York case has been dragging along for about eight years—it really started in 1920—and the Ohio controversy dates back to 1924. Conclusion of the testimony, however, may not be so hopeful as it seems, for the chances are that the decisions will be appealed by the party who will be dissatisfied—and that probably means a long court fight.

* * * *

These two telephone cases are important not only because of the many years of litigation but because of the issues involved. At the 11th hour the New York Telephone Co. surprised the commission by submitting an entirely new schedule of rates that would yield an additional revenue of $8,000,000 and assure the company a 7 per cent return on its claimed valuation.

This move was made because of the company's actual experience in February and March when revenues fell below the estimates made when the January rates were drafted. Judging by its past procedure, the commission will not allow the new rates, and the disputed schedules will figure in later court action.

* * * *

These two long, drawn-out rate fights have strengthened the position of critics of state regulation who, by pointing to New York and Ohio, have argued that state control is dilatory and ineffective. State regulation has much to commend it, but the New York and Ohio cases have not added to its reputation for adequate utility supervision. Of course, it should be remembered that politics had much to do with prolonging these controversies, especially in New York.

In the latter state a commission has been revising the utility laws, and Wm. J. Donovan, the counsel of that body, recently made a significant statement regarding the regulatory system.

"The true philosophy of regulation," said he, "lies in an appropriate, harmonious relationship between the utilities and the state. This can only come from an established basis of mutual confidence. In my judgement, a kind of legalized war against utilities, like all warfare, will end in economic waste."

"There are but two alternatives which must be faced—either ownership and oper-

ation by the state itself, with whatever ills may attend it, or else acceptance by both the state and the utilities of a definite standard of social justice."

Courtesy.

One word that telephone workers hear a lot about is "courtesy," and that is something they know a lot about, too, for telephone service and courtesy have become interwoven until they are almost interchangeable terms.

One of TELEPHONY'S good friends, Harry W. Koenig, of Fort Wayne, Ind., submits a collection of definitions of courtesy which hit the mark square in the center. He says:

"Treating a customer like a rich uncle, so you may extract his coin, is not courtesy—that's foresight.

Offering a seat to the man who enters your office is not courtesy—that's duty.

Offering a companion a cigar when you light one yourself is not courtesy—you'd be ill-bred if you didn't.

Listening to the grumblings, growlings and groanings of a bore without remonstrating is not courtesy—that's forebearance.

Helping a pretty girl across the street, holding her umbrella, carrying her poodle—none of these is courtesy. The first two are a pleasure, the last is politeness.

Courtesy is doing that which nothing under the sun makes you do but human kindness. Courtesy springs from the heart. If your mind prompts the action there is a reason; if there is a reason, it is not courtesy, for courtesy has no reason. Courtesy is good-will, and good-will is prompted by the heart full of love to be kind.

Only the generous man is truly courteous—he gives freely without a thought of receiving anything in return. The generous man has developed kindness to such an extent that he considers everyone as good as himself, and treats others not as he should like to be treated (for generosity asks nothing) but as he ought to be treated."

That conception is theoretically correct. There must, however, be both reason and system behind telephone courtesy or any other kind of business courtesy. If creating public good-will is the motive back of business courtesy, it must be systematic and consistent. Spontaneous courtesy is charming, but if it is to be on the job 24 hours a day it requires real effort to hold a steady pace.

* * * *

Telephone statistics for the Bell System for the first quarter of 1930, ending March 31, supply interesting information. Although the number of telephones added during the period was but 40 per cent of the number added in the first quarter of 1929, the number of long-distance messages was 5 per cent above a year ago. This would indicate that toll business increases regardless of a slackening in general business, thereby confirming the belief that in dull times, when industry chooses to economize, it uses the long distance telephone more.

Net income for the Bell system was somewhat less in the first quarter, compared to 1929, but gross earnings were larger. President Gifford reports that 100,000 telephones were added, as against 250,000 in the same period of 1929, and adds that "the growth in the volume of business, while somewhat retarded, is continuing at a rate which is generally satisfactory in view of the lower level of industrial operations as a whole which marked the first quarter."

COMING CONVENTIONS

Indiana Telephone Association, Indianapolis, Claypool Hotel, May 6 and 7.

Kansas Telephone Association, Topeka, Hotel Jayhawk, May 13, 14 and 15.

Pennsylvania State Telephone & Traffic Association, Penn-Harris Hotel, Harrisburg, May 13, 14 and 15.

Up-State Telephone Association of New York, Seneca Hotel, Rochester, May 21, 22 and 23.

Awards in "Telephony's" Prize Article Competition

GENERAL ARTICLES

First Prize: Fred Coulson, Jr., The United Telephone Co., Abilene, Kans. "The New Exchange."

Second Prize: E. R. Hannibal, General Plant and Traffic Manager, West Coast Telephone Co., Everett, Wash. "Organization."

Third Prize: R. L. Parker, Manager, Geneseo Cooperative Telephone Co., Geneseo, Ill. "Charging for Fire Information."

COMMERCIAL ARTICLES

First Prize: Ralph W. Neeb, Commercial Supervisor, Home Telephone & Telegraph Co., Fort Wayne, Ind. "Some Essentials of Sales Campaigning."

Second Prize: J. Hartwell Jones, Auditor of Receipts, Peninsular Telephone Co., Tampa, Fla. "That Ever-Engrossing Subject—Final Bill Collection."

Third Prize: J. W. MacLafferty, Manager, Oelwein, Iowa, exchange, Northwestern Bell Telephone Co. "Employe Participation in Furnishing and Sale of Service."

PLANT ARTICLES

First Prize: T. DeWitt Talmage, Transmission Engineer, Illinois Telephone Association, Springfield, Ill. "A Simple Magneto Service Survey."

Second Prize: B. C. Burden, Lincoln Telephone & Telegraph Co., Lincoln, Neb. "Buried Cable Plant."

Third Prize: D. B. Corman, Kellogg Switchboard & Supply Co., Louisville, Ky. "Common Battery Rural Service."

TRAFFIC ARTICLES

First Prize: Mrs. Dorothy H. Van Ert, Chief Operator, Michigan Home Telephone Co., Muskegon, Mich. "Some New Solutions to the Old Problems."

Second Prize: H. M. Bruckhart, Traffic Engineer, Home Telephone & Telegraph Co., Fort Wayne, Ind. "Traffic Records in Dial Offices."

Third Prize: C. L. Havener, Traffic Engineering Department, United Telephone Co., Abilene, Kans. "Traffic Engineering Practices."

Cash Prizes were awarded in each division as follows: First, $75; second, $45, and third, $30.

Plans for Future Toll Development

Executives, Commercial, Plant and Traffic People! Here is Story About Toll Development Business Now Under Way and Plans for Handling It in Future—Paper Presented at Convention of Ohio Independent Telephone Association

By Randolph Eide,
Vice-President, The Ohio Bell TelephoneCo., Cleveland

There are today in Ohio about 725,000 Ohio Bell telephones; 356,000 more in the connecting company field and 160,000 in the Cincinnati territory—in all a total of approximately 1,250,000.

Various operating groups interconnect all of these Ohio telephones with toll lines. In turn, each Ohio telephone is connected with 20,400,000 other telephones in the United States; and these in turn again, with about 9,500,000 telephones in Canada, Europe, British Isles, Northern Africa, Mexico, Cuba and South America, four continents.

In all of the world there are approximately 24,500,000 telephones, of which nearly 30,000,000 can be connected by means of the lines of the Bell system and its connecting companies; or in other words, any telephone customer in Ohio is capable of being connected with 87 per cent of the telephone customers of the world.

Responsibility for satisfactory service to the customer and economical operation of the long distance lines is divided into three distinct groups:

1. The connecting companies, involving their local exchange plants and local toll lines.

2. The Ohio Bell company and other associated Bell companies involving also their local exchange plants and toll systems.

3. The long lines department of the A. T. & T. Co. with its national and international toll system.

In 1876 service between cities had a humble beginning, when a conversation was carried on between Boston and Salem, Mass., a distance of 14 miles. This could hardly be called at that time telephone service, because sometimes it worked and again the transmission was questionable.

It took eight years more, or until during 1884, to see the opening for commercial service of a line between Boston and New York. With this event it may be said that speech between cities discarded its swaddling clothes, became an awkward youth, and began its march towards the west. It was not, however, until the year 1892 that the line between New York and Chicago was opened.

Steady progress in research and development went on and on, and by 1911 Denver, half way up the Rocky Mountains, was able to say "Hello" to Broadway. Service between other points, of course, was developed simultaneously.

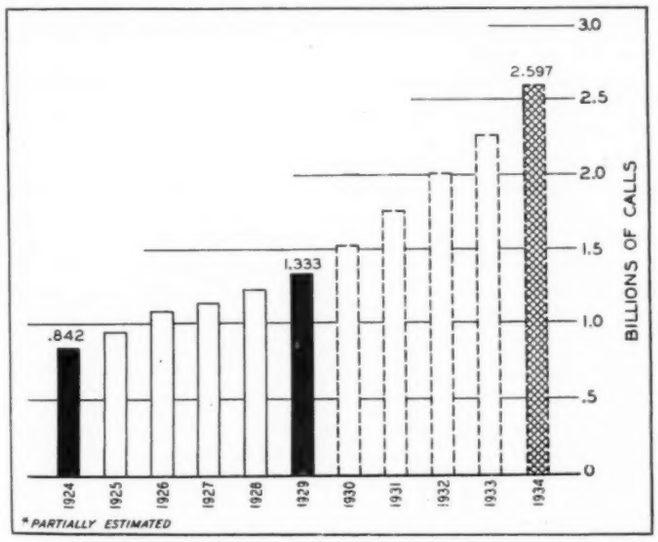
What seemed like the realization of a dream happened in 1915 with the opening of the New York-San Francisco transcontinental line; 39 years from the first long distance call to obliterate by speech the distance across the continent. This was considered by all of us as sensational and demonstrations were witnessed by thousands; but development and research, with respect to speech transmission, it may be said, was the only beginning. The scientist had his eye and imagination concentrated on even greater things, and to him distance no longer appeared a barrier.

The year 1927 was another high-light in long distance telephone development. That year service by means of wire and wireless was inaugurated between United States' cities and cities in the British Isles and Europe; the Atlantic had been crossed for commercial service.

In that same year Mexico City, the historic capital of the Aztecs, was connected. Country after country has been added until today there are 24 separate countries available to our long distance customers. Science, however, is continuing its march with conversations from ship to shore, with airplanes, just now with South America; and there is being manufactured today a cable to be laid across the Atlantic Ocean for long distance telephone purposes. Before long the world will be telephonically interconnected for commercial service.

The pushing forward of telephone frontiers has created a romantic background for our industry, and the ambitious articles of incorporation of the American Telephone & Telegraph Co. back in 1885 seem well on the way towards fulfillment. The program in those articles closes with the following words:

> And each and every of said cities, towns and places is to be connected with each and every other city, town or place in said states and country and also by cable and other appropriate means with the rest of the known world as may hereafter become necessary or desirable in conducting the business of this association.



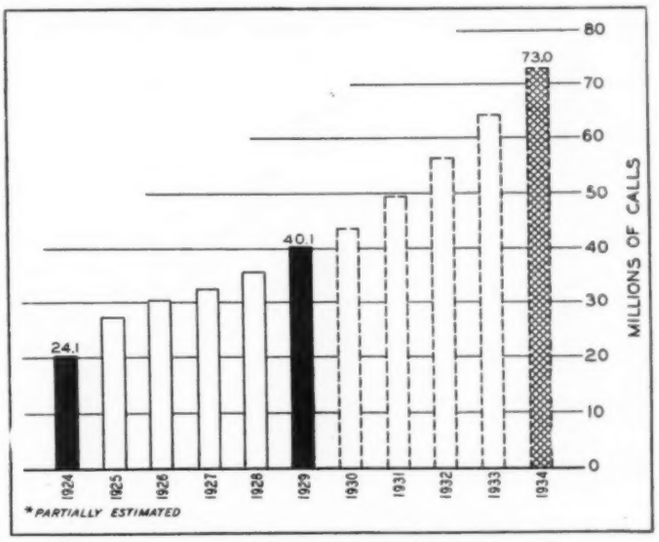


Chart No. 1. Annual Volume of Toll Calls; Entire Country—Chart No. 2. Annual Volume of Toll Calls; Entire Ohio.

The development in the volume of toll business, while perhaps less spectacular, is of first importance. The growth has been steady, but since 1924, or during the past five years, the volume of business handled has shown great acceleration. Chart No. 1, you will observe, shows about

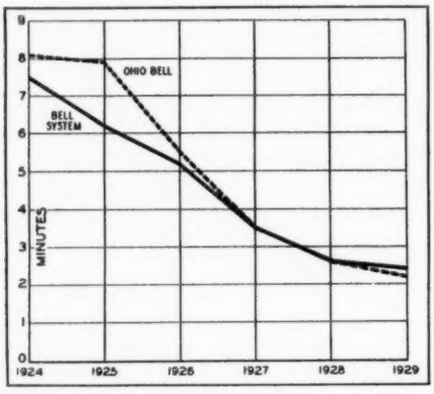


Chart No. 3. Average Speed in Minutes, of Toll Service.

850,000,000 toll calls in 1924 and well over one billion, 300 million in 1929, an increase of 58 per cent. By 1934, you will observe that this number will nearly double, or reach the 2½ billion mark.

Similarly in Ohio, about the same growth has been experienced and for the future is contemplated. In Ohio (chart No. 2), the increase has been from 24,000,000 to 40,000,000, or about 66 per cent in the five-year period from 1924 to 1929. By 1934 the figure will reach something in the order of 73,000,000, or an increase of about 33,000,000, or 82 per cent.

The business so far this year does not show this rate of increase, but we all expect long distance calling with improved business conditions to react promptly and favorably.

Some spectacular increases have been experienced in the longer haul. Between the years 1923 and 1928 the total long distance traffic for the country increased 66 per cent; Boston-New York increased 62 per cent, while the longer haul traffic during the same interval between New York and Chicago increased 194 per cent, and transcontinental business 430 per cent. These increases give engineering and operating people every year new and intricate problems to solve in order to keep abreast of the times.

There must have been many definite reasons for this unprecedented growth in toll business, and it seems to me that these divide rather readily into three principal factors:

1. An improved quality of service, resulting from a better grade of transmission, more rapid speed of service, greater freedom from and less service interruptions; and, on the whole, more convenient service.

2. Lower costs of toll business to the customer.

3. Greater general prosperity throughout the country, including therein the development among business men of a telephone consciousness.

More than any others, however, there are two features that have been outstanding in their effect, and will continue to be so on this rather unusual increase in the amount of toll business used by our customers.

The first of these is improved transmission, and it should be regarded as a prime major recent development. Improved transmission is largely a matter of circuit design, arrangement of facilities and high grade maintenance.

The second of these features is speed of service. Speed improvement is attributable to better trained operators, improved operating technique, closer central office management and supervision, a more comprehensive and liberal layout and design of circuits, and improved planning of switchboards.

On chart No. 3 it will be noted that the interval for completed toll board calls in 1924 was 7.5 minutes for the Bell system, while in 1929 it was reduced to 2.4 minutes. During the same period the speed in Ohio was reduced from 8.1 minutes to 2.2 minutes; and an objective for the future of under two minutes should not prove unattainable. Certainly the customer will not object. This speed will also develop additional business for the telephone companies.

Perhaps the most significant operating feature in obtaining this faster speed was the adoption of the combined line and recording method, commonly known as the CLR method. On account of the rapid service obtained by this method, it has been found that delays incident to operation on calls not handled by having the calling party remain on the line are magnified in the customer's mind. Future developments must look to increased adoption of and further refinements in the CLR method, especially so in connection with calls requiring two or more switches to reach their destination, generally designated as multi-switch calls.

Transmission equivalents or the losses encountered on toll calls are constantly being revised downward. New and better standards have been adopted and transmission in the future will be still further improved. Customers now hear and understand each other on long distance calls with less effort and more comfort.

To really better transmission, the problem must be viewed not only from a volume but also from a quality standpoint. As a result, the band of frequencies which is transmitted is being enlarged, particularly in the higher frequencies. The circuit must not only have a good volume to the listener, but also a high degree of intelligibility and naturalness.

Just a few years ago the primary transmission consideration was from a voice volume standpoint, and heavy loading was usually applied to improve this volume. Heavily-loaded circuits, however, do not transmit well the higher frequencies of the voice, and present-day and future transmission standards demand that the distortion impairment on account of the heavily-loaded facilities be eliminated, with the result that the heavily-loaded type of facility is rapidly disappearing from the plant.

Lighter-loaded facilities in use today, and generally being adopted for the future, permit the transmission of higher frequencies, but at the same time do not provide by themselves for transmission of quite the degree of volume as the heavy-loaded facilities. This volume, therefore, except on the shorter circuits, is corrected by the proper use of telephone repeaters.

A toll cable in itself cannot replace an open-wire toll line. Good transmission through cable is possible only when the toll cable is supplemented with the necessary repeaters, loading, etc. The introduction of cable and repeaters has introduced many new considerations into transmission problems; and again research and development has made possible practically perfect transmission over cable routes.

To accomplish this, longer haul circuits are being placed in service over four wires instead of two; the transmission in one direction taking place over one pair of wires, and in the reverse direction over another pair. In addition, there is economy in this arrangement, because for a long hall a much higher grade circuit can be established over four No. 19 gauge wires than would be possible over two wires contaning as much copper as the four small wires.

Much work has been and is being done also to eliminate or curtail noise and crosstalk. Another matter under constant consideration towards the continued improvement of voice transmission is the influence upon telephone plant by power supply plant. Adequate separation of the power supply plant and telephone plant will usually produce the desired result. The power companies, however, must serve the same public that is supplied with telephone service and, of necessity, must construct much of their plant upon the same right of way and highway as the telephone plant.

Known methods of inductive coordination can be applied in many cases which permit reasonable proximity of the two plants, and joint construction of the two plants is desirable from an economic point of view, when the character of the supply plants involved makes such joint construction possible. The best engineering solution should govern each case and the necessity of adequate arrangements for the interchange of information between the power companies and the telephone companies as to immediate and future plans for plant rearrangements and extensions cannot be overemphasized.

Improved service features have been

firmly impressed upon the public mind, and the customer rightfully has been led to expect in general a toll service in the future quite as satisfactory and rapid as local service. Increases in traffic are bound to come.

To maintain continuous and reliable service, to establish the best routes, to provide adequate and flexible layouts of plant and equipment, to continue improvements in speed and transmission, and to make the service more and more convenient, offer a challenge to telephone executives. The public demand for service can only be satisfactorily met in the future by the establishment of definite programs, which anticipate what is going to take place five, ten and twenty years from now.

The toll fundamental plan for Ohio, which we are using as a guide in making toll plant extensions, was completed in its original form about five years ago. Those best qualified for the work concentrated their efforts on the problem; and, after practically two years of study and planning, a program was finally developed which represented the best judgment of the company. The use of the plan over a five-year period leads us to believe that it will be realized in its main original features along in the due course of time.

Minor changes have been made and will continue to be made as new developments, operating methods and traffic volume require alterations, but the general design of this plan, as experience is showing, will remain essentially as originally set up. The principal objectives sought in the Ohio toll fundamental plan are:

(a) The determination of the proper cable routes and their approximate date of establishment.

(b) Similar determination of the open-wire routes.

(c) Fixing those switching points that

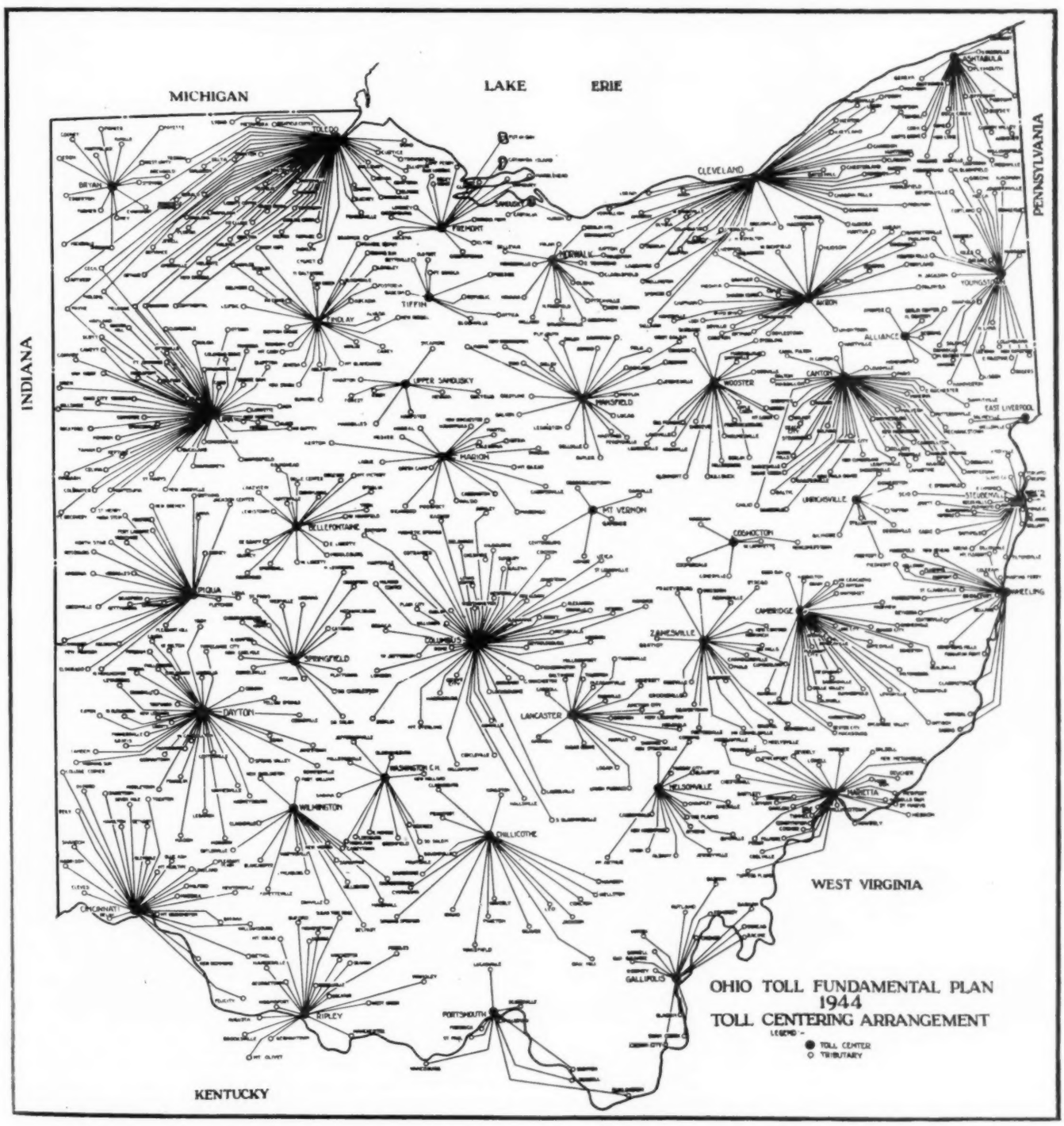


Chart No. 4. Map of Ohio Showing Toll-Centering Arrangement as Projected for 1944 Under the Ohio Toll Fundamental Plan.

should remain as a result of flow of traffic and service requirements as permanent toll centers.

(d) Establishment for each tributary office of the toll center or centers to which it should be connected.

(e) Fixing the large switching points and primary outlets.

(f) Planning for the routing of traffic between all Ohio cities and to and from other parts of the country, nearby and distant.

(g) To establish economical construction programs, and looking to the future extensions of the plant and equipment with certainty that the plant will work to the degree of service efficiency required by the customer.

(h) To keep the toll investment, which is becoming a larger and larger portion of the total plant, at a minimum consistent with good service.

(i) To make it possible to construct toll plant and toll equipment in larger units in the proper places and of the right type.

(j) To make sure that the plant not only meets the present service requirements and properly plans for future needs, but is also coordinated with the plant of other Bell companies and connecting companies, including the long lines of the American company, to meet adequately future growth and service requirements.

I have outlined these objectives in some detail. Chart No. 4 is a map of Ohio, showing the Ohio toll fundamental plan necessary to meet these requirements. This map shows the proposed toll centering arrangements. In arriving at this result, estimates were made of the calls expected between each two exchanges in the state in the year 1945. Consideration was given to the past rate of increase in traffic between every point, as well as the estimated increase in population in each community, and other known or estimative economic factors.

After forecasting the number of calls expected, they were routed by the most practical and direct route, disregarding, in a large measure, existing facilities. Calls on each route were then totaled and computations made to determine the number of circuits required for satisfactory and economical service. Studies followed to determine whether cable or open wire would be the better means, considering all factors, of providing facilities, after which the approximate date that the facilities should be provided was determined.

The Ohio toll fundamental plan has been coordinated with the long lines plans of the national system. The general toll switching plan for the United States is shown on chart No. 5. There, it will be observed, by the larger dots, that San Francisco, Los Angeles, Denver, St. Louis, Chicago, New York, Atlanta and Dallas are indicated as regional centers. The other smaller dots represent what have been termed primary outlets, of which six appear in Ohio—Cincinnati, Dayton, Columbus, Toledo, Cleveland and Youngstown.

Each of Ohio's toll centers, it is contemplated, will be connected with at least one and possibly some with two, three or more primary outlets if service and flow of traffic require.

Until the toll centers in Ohio can be reduced to approximately the points shown on chart No. 4, the complete plan cannot be realized. When we have reached this point, it will be possible for any toll center in the state to reach any other toll center over a large group of high-grade trunks directly connected to the primary outlets, insuring very rapid service.

These regional centers—that is New York, Chicago, St. Louis, Denver, San Francisco, Los Angeles, Dallas and Atlanta—will be directly interconnected and have direct circuits to as many of the primary outlets of the various associated companies so as to meet requirements.

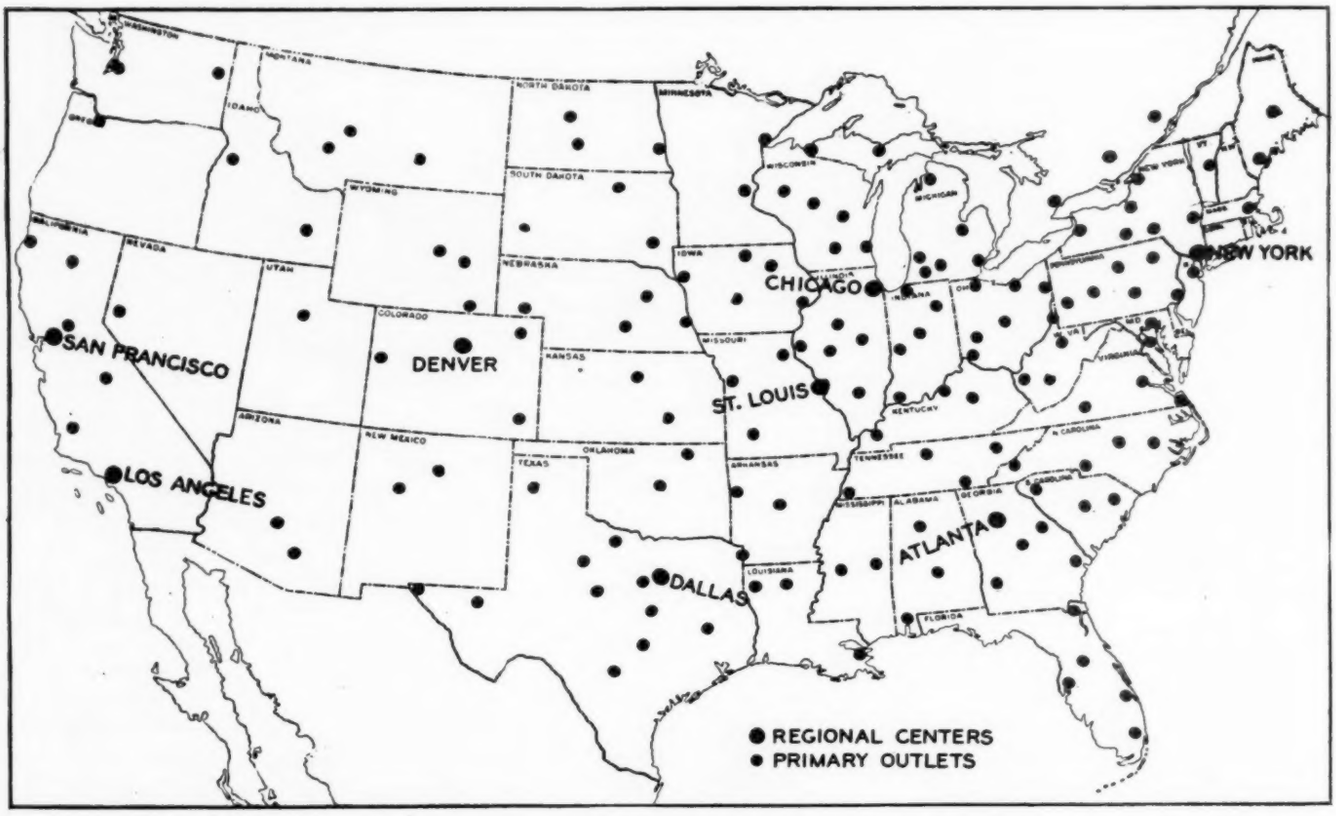


Chart No. 5. Map of General Toll Switching Plan Showing Locations of Points Tentatively Selected as Regional Centers and Primary Outlets in the United States.

In a manner similar to the plan in Ohio, other associated Bell companies in the Bell system have set up their toll centers and primary outlets with interconnecting networks of large trunk groups within their own areas. These are linked together with the network of the long lines branch of the American Telephone & Telegraph Co.

In these plans we have the basis of an improved nation-wide system which will provide means for still better universal service. The number of switches on built-up connections will be greatly reduced. The volume of traffic flowing over the networks will assure large groups of circuits, generally in cable, and, consequently, faster service to the customer. Development and research, to insure better transmission, have been included in these toll fundamental plans.

(*Please turn to page* 32.)

Changes Among Executives of Bell System

Announcements Made of Elections of New Vice-President of A. T. & T. Co., New Heads of Ohio Bell Company and New President of Indiana Bell—E. F. Carter, Former President of Ohio Bell Named Successor of E. K. Hall of A. T. & T.

Last week a number of changes were announced in the higher executive personnel of the Bell system. A new vice-president of the American Telephone & Telegraph Co., a new president and a new operating vice-president of the Ohio Bell Telephone Co., and a new president of the Indiana Bell Telephone Co., were elected on April 24.

Edwin F. Carter, of Cleveland, Ohio, president of the Ohio Bell Telephone Co. since 1926, was elected a vice-president of the American Telephone & Telegraph Co., to succeed E. K. Hall, vice-president of the American Telephone & Telegraph Co., in charge of personnel since 1919.

Edward K. Hall, Vice-President of A. T. & T. Co. Since 1919, Retires August 1 to Become Associated with the Amos Tuck Graduate School of Business of Dartmouth College at Hanover, N. H.

Edwin F. Carter, of Cleveland, President of the Ohio Bell Telephone Co. Since 1926, Succeeds E. K. Hall as Vice-President of A. T. & T. Co. He Commenced as an Inspector in 1900.

Mr. Hall, in accordance with long-standing plans, is retiring on August 1 to become associated with the Amos Tuck Graduate School of Business of Dartmouth College as lecturer on industrial relations and business management.

Randolph Eide, operating vice-president of the Ohio Bell company since 1928, was elected president of that company following the resignation of Mr. Carter.

Archibald J. Allen, assistant vice-president of the American Telephone & Telegraph Co. since last June, was elected vice-president of the Ohio company in charge of operations to succeed Mr. Eide.

Curtis H. Rottger, president of the Indiana Bell Telephone Co. since 1921, was elected chairman of the board of directors and was succeeded as president by James F. Carroll, Jr., for the past year vice-president of the Ohio Bell Telephone Co., in charge of public relations. He started in traffic work in 1906 in New York state.

During the years that Mr. Hall has been vice-president of the A. T. & T. Co., he has become well known to the Independent

Randolph Eide, of Cleveland, New President of Ohio Bell Telephone Co., Entered Telephone Field in 1910 and Became Operating Vice-President of Ohio Company in 1928, Coming Up Through Traffic.

Curtis H. Rottger, Indianapolis, Ind., Elected Chairman of Board of Directors of Indiana Bell Telephone Co. on April 24, Has Spent 47 Years in Telephone Work in Illinois and Indiana.

James F. Carroll, Jr., of Cleveland, New President of Indiana Bell Telephone Co., Was Former Vice-President of Ohio Bell Telephone Co. in Charge of Public Relations. He Commenced in Traffic in 1906.

telephone field through representing his company in the various conferences between the Bell group and the Independent group. Through the spirit of fair play which he has manifested and his willingness to discuss points of differences, Mr. Hall has been held in high regard throughout the Independent industry.

Mr. Carter, who succeeds Mr. Hall, is highly regarded by the telephone people of Ohio and in Texas and in other parts of the Southwest, where he has come in contact with Independents through his official connections with Bell companies. He has a justly established reputation for fair dealing and honesty, and in his new position undoubtedly will successfully continue to further the amicable relations of the Bell group with the Independent group which have been so ably promoted by Mr. Hall.

Edward Kimball Hall entered the telephone field through a long legal connection with the business. He began the practice of law in Scranton, Pa., in 1896, going to Boston the following year to enter the firm of Powers, Hall & Jones. He became attorney for the New England Telephone & Telegraph Co., one of the clients of his firm, and served in that capacity for some ten years, later becoming vice-president.

In January, 1917, Mr. Hall became vice-president of the Electric Bond & Share Co. in New York City, a corporation which finances and manages electric light and power companies.

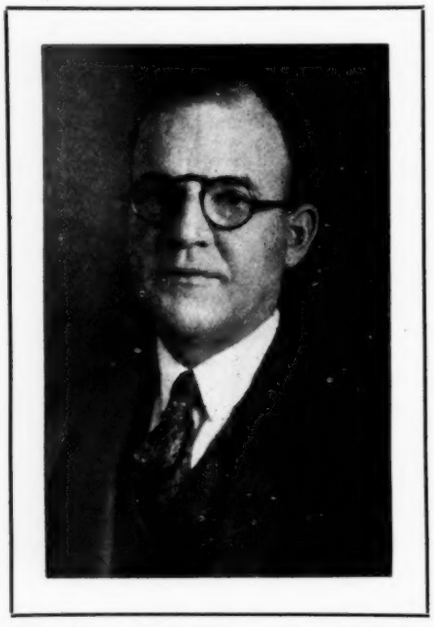
On September 1, 1919, he was elected a vice-president of the American Telephone & Telegraph Co. in charge of personnel and public relations. In this capacity Mr. Hall was brought into close contact with many Independent telephone men and his broad-minded recognition of many of their claims has resulted in greatly improved relations between the Independent and Bell groups.

Mr. Hall was born in Granville, Ill., July 9, 1870. He graduated from Dartmouth college in 1892 and received his law degree from the Harvard Law school in 1896. During his years at Dartmouth College, he was a member of the varsity football, baseball and track teams, and was coach and director of athletics at the University of Illinois from 1892 to 1894. Mr. Hall has always retained his interest in athletics and has served for many years as chairman of the Intercollegiate Football Rules Committee.

Edwin F. Carter, newly-elected vice-president of the A. T. & T. Co. to succeed Mr. Hall, was born at Farmington, Mo., May 24, 1877. He received his education in the St. Louis Manual Training School and Washington University (St. Louis).

He began his telephone career in 1900 as inspector for the Bell Telephone Co. of Missouri. After successively serving as right-of-way supervisor, general foreman, contract agent, and commercial manager, he became in 1917, general manager of the state of Kansas for the newly-formed Southwestern Bell Telephone Co.

In 1919, Mr. Carter went to Dallas as general manager for Texas, and in 1921 he returned to St. Louis as general commercial manager. In 1926, he was elected vice-president of the Southwestern Bell company and served in that capacity until August, 1926, when he was elected president of the Ohio Bell Telephone Co.



Archibald J. Allen, of New York City, Just Elected Operating Vice-President of Ohio Bell Telephone Co., Has Been in Industry Since 1907. He Became an Assistant Vice-President of A. T. & T. Co. Last June.

Randolph Eide, new president of The Ohio Bell Telephone Co., has been connected with the telephone industry in Ohio since May, 1917, when he became general traffic superintendent of the former Central Union Telephone Co. at Columbus. He was born at Lee, Ill., and is a graduate of the University of Illinois.

In 1911, the year following his graduation, Mr. Eide entered the telephone business as a traffic student with the New York Telephone Co. He served in various traffic capacities with the Southwestern Bell Telephone Co., St. Louis, and the Michigan Bell Telephone Co., Detroit, before going to Ohio.

When the Ohio Bell Telephone Co. was formed in 1921, Mr. Eide became its general traffic superintendent, which post he held until November, 1923, when he was made general manager. In 1925 he was elected vice-president and general manager, and when the company was divided into two operating areas on January 1, 1928, he was made vice-president in charge of operations.

Archibald John Allen, newly-elected operating vice-president of the Ohio Bell Telephone Co., was born at Linwood, N. J., April 27, 1881. He was educated in various public and normal schools and at Williams College, Williamstown, Mass., where he received the degree of A. B. in 1907.

Mr. Allen's first employment after completing his college course was with the Central District & Printing Telegraph Co., Pittsburgh, Pa., where he was engaged during 1907 in service inspecting work and as traffic chief. In 1908 he became division inspector at Butler, Pa., and in 1909 was returned to Pittsburgh for general traffic work.

On August 1, 1910, Mr. Allen entered the employ of the American Telephone & Telegraph Co. as local traffic engineer on the staff of the operation and engineering department at the New York headquarters. On December 1, 1919, he was appointed engineer and on March 1, 1927, became traffic engineer.

Mr. Allen was appointed assistant vice-president of the American Telephone & Telegraph Co. on June 1, 1929, which position he held at the time of his appointment as operating vice-president of the Ohio Bell Telephone Co.

Curtis H. Rottger, who resigned as president of the Indiana Bell Telephone Co. to become chairman of its board of directors, was born at Jacksonville, Ill. After attending the public schools in Jacksonville he went into the telephone service in that city in 1883, his first position being that of night operator.

On March 1, 1883, he was appointed manager of the Central Union Telephone Co.'s Paris, Ill., exchange. He was transferred on January 1, 1884, to Muncie, Ind., taking the position of manager of the Central Union exchange at that point. On April 1, 1886, Mr. Rottger was transferred back to Jacksonville, Ill., as manager of the Central Union's property, remaining there until April 1, 1892, when he was appointed manager of the company's Springfield, Ill., exchange.

In 1903, Mr. Rottger was promoted to the position of division superintendent for the Central Union Telephone Co. in Illinois, with headquarters at Springfield. On January 1, 1911, he was appointed general superintendent for the Central Union Telephone Co., and on January 1, 1914, became general manager of the Central Union Telephone Co. with headquarters in Springfield.

On December 1, 1920, he was elected vice-president of the Indiana Bell Telephone Co. with headquarters at Indianapolis. In October, 1921, he became president of the Indiana Bell Telephone Co., succeeding Edgar S. Bloom. On April 24, 1930, Mr. Rottger was elected chairman of the board of the Indiana Bell Telephone Co.

James F. Carroll, Jr., new president of the Indiana Bell Telephone Co., was vice-president of the Ohio Bell Telephone Co. in charge of public relations from April, 1929, to the time of his connection with the Indiana Bell company. For the year

previous to 1929, he was the general manager of the northeastern area of the Ohio Bell company with headquarters at Cleveland. He went to Ohio in December, 1923, as general traffic manager.

Mr. Carroll was born at Greenville, Ill. He attended the public schools there and later Morgan Park Academy just outside of Chicago. He graduated with an A. B. degree in the class of 1906, Hamilton College, Clinton, N. Y.

Upon graduation he entered the telephone business at Syracuse, N. Y., as a student in the traffic department of the New York Telephone Co. That fall he was made district traffic superintendent at Oswego, N. Y., and in January, 1907, was transferred to Watertown. Two years later on February 1, 1909, he went to Pittsburgh, Pa., with the traffic department of the American Telephone & Telegraph Co. and in April of the next year became its district traffic superintendent and was located at Harrisburg, Pa.

From July, 1910, to September, 1915, Mr. Carroll served as district traffic superintendent for the New York Telephone Co. at Auburn and Utica, and for the Bell Telephone Co. of Pa. at Scranton and Pittsburgh during the ensuing five years. On February 1, 1920, he went to New York City as division superintendent of traffic for the New York Telephone Co. Since December 15, 1923, Mr. Carroll was in Ohio in various executive capacities with the Ohio Bell Telephone Co.

Federal Communications Bill Redrafted

Senate Committee Redrafts Bill for Unit Control of Communications—New Increase Would Merge All Federal Activities Into One Single Agency—Status of Communications as Common Carriers Defined—Required to File Tariffs

The tentative draft of a bill to create a federal communications commission, with full authority over telephones, telegraph, cables and radio, and to take over the functions of the Federal Radio Commission, the radio division of the Department of Commerce, and the regulatory activities of the Interstate Commerce Commission affecting communications, was made public on April 21 by Chairman Couzens of the Senate committee on interstate commerce.

Entirely New Bill.

The bill "to provide for the regulations of communications by wire or radio, and for other purposes," is to be known as "The Communications Act of 1930." It is a voluminous one divided into four general titles, and consists of 114 sections. Title I takes up "General Provisions"; Title II, "Radio"; Title III, "Common Carriers," and Title IV, "Administrative Provisions."

It is expected that the committee will work over the bill for some time before it is reported to the Senate.

The proposed bill was drafted by Chairman Couzens and Senator Dill (Dem.), of Washington, co-author of the present radio act, in collaboration with William C. Green, of St. Paul, Minn., special counsel for the committee. It is the result of extensive hearings which were begun by the committee in May, 1928, and were concluded last February. During the hearings, by authority of the Senate, the committee conducted a general inquiry into radio.

It will be considered by the committee in executive session for amendment and report to the Senate, Senator Couzens explained orally. In all essential features it is a complete rewrite of the original Couzens bill, it was further explained.

The salient provisions of the measure are as follows:

Designation of all telephone, telegraph, cable and radio communications companies as common carriers, subject to practically the same regulations that govern railroad carriers.

Broadcasting stations shall not be considered common carriers for hire.

Modification of the Davis equalization amendment to the radio act which requires equal distribution of radio broadcasting facilities among the five radio zones and among the states according to population.

In lieu of the provision, facilities would be allocated 25 per cent equally among the states, 25 per cent among the states according to their respective areas, and 50 per cent among the states according to population. This would entail a reallocation of broadcasting facilities.

Retention of the anti-monopoly provisions of the present law and, in substance of "Section 17," prohibiting the joint ownership of wire and wireless companies, tending to lessen competition.

Requirement that common carriers in radio also engaged in manufacture, sale or distribution of radio apparatus, shall agree to lease or sell, during the term of a radio license, to any radio communication common carrier any such apparatus manufactured, sold or distributed, upon terms and conditions they shall agree upon, or if no mutual agreement is arrived at, that such conditions shall be arrived at by the commission, after a formal hearing.

Establishment by the commission of "through routes and joint rates" on communications, under which all communications carriers will be required to cooperate, if the commission so orders, in the mutual handling of traffic.

Valuation of properties by the commission, for the purpose of rate making, with the option of having the carriers and the commission agree upon such valuations without protracted hearings, if mutually satisfactory.

Supervision by commission of issuance of securities by common carriers if it so desires.

Changes in the procedural and legal provisions of present radio act, which would be superseded, and in distribution of duties of certain new personnel provided for.

Section 17, of the existing law, which was the basis of long discussion in the committee's investigation, is retained, except for a clarification and revision of its language. Upon this section hinges the proposed merger of the communications facilities of the Radio Corp. of America and the International Telephone & Telegraph Corp., which would tie up the world-wide radio facilities of the former and the globe-girdling cable and radio facilities of the I. T. & T., together with the Postal Telegraph system.

As at present written, it was pointed out, the provision still prohibits such a fusion, since it would substantially lessen competition. The law provides, and the new bill proposes, that no mergers of wires and wireless be permitted if it is "to substantially lessen competition or to restrain commerce between any place in the United States and any place in any foreign country, or to unlawfully create a monopoly in foreign communication."

The bill would prescribe as common carriers for hire all telegraph, telephone, cable and radio companies, and other persons engaged in communication by wire or radio. "Persons engaged in radio broadcasting shall not, for the purposes of this act, be deemed common carriers," it reads.

Organization of Proposed Commission.

As to the organization of the new commission, it would comprise five members, to be designated by the President. The functions, records, files and employes of the radio commission and radio division would be absorbed by the new commission. The communications functions and records of the Interstate Commerce Commission also would be taken over.

The provision requiring agreements of manufacturers as conditions of licenses was inserted, it was explained, on the basis of testimony presented to the committee by Joseph Pierson, of Press Wireless, Inc., and by representatives of the Standard Oil

The Southern New England Telephone Co. Makes Efficient Use of This Type of Light Construction Truck.

Co., of New Jersey and the Chicago police department, that the Radio Corp. of America had made certain rigid conditions as to the leasing or purchasing of its transmitting equipment for their use in communications.

Specifically, the requirement is that the commission shall not grant nor approve the assignment of any station license for radio communication as a common carrier to any person engaged in the manufacture, sale or distribution of radio communications apparatus, "unless said person has filed with the application an agreement that he will lease or sell, during the term of the license, to any radio communication common carrier . . . any such apparatus manufactured, sold or distributed by him . . . ."

By proposing the establishment of "through joint rates," the bill follows largely the recommendation of the Radio Corp. of America.

Through Joint Rates.

At the hearings representatives for the Radio Corp. of America pointed out they were handicapped by lack of a "pick up and delivery" service for its transoceanic radio circuits. Both Western Union and Postal Telegraph, it was testified, refused to enter into agreements whereby their telegraph offices throughout the country would accept Radio Corp. of America radiograms. Both desired to obtain this business for their competitive cable circuits.

The commission, under the act, would be empowered to establish through routes and joint rates governing all carriers. Handling of such traffic, however, would be subject to the direction of the sender, who would be required to specify that the message be routed by land line to a particular domestic destination, and thence either by Radio Corp. of America or Mackay radio or by a particular company's cable.

The bill would authorize the communications commission to conduct investigations of rates, and, in its discretion, to suspend rates it believes exorbitant. All common carriers are required to file tariffs under the proposed law.

The provision in the bill providing for valuation of properties by mutual agreement between government and the carriers, it was stated at the committee, is the first time that such a provision has been placed in any federal law. An "agreed valuation" plan was proposed in New York state, but was never enacted.

Canadian National Railways Inaugurate Train Telephone.

Telephone communication between moving trains and a distant point was introduced as part of the Canadian National Railways regular service between Toronto and Montreal on Sunday, April 27. The two-way train circuit is the first of its kind in the world and has been perfected by an American, J. C. Burkholder, chief engineer of the Canadian National Telegraphs.

The train telephone is a combination of telephone and radio broadcast, the voice of the passenger on the train being broadcast from the antenna of the telephone car to the carrier current telegraph wires which parallel the track.

Once on these wires it is transferred to a pick-up station, from there relayed to the exchange of the Bell Telephone Co. of Canada at Kingston, Ontario, from where it is connected with any point having Bell or American Telegraph & Telephone Co. connections.

The new service is first being made effective on the run between Toronto and Montreal coincident with the introduction of the new fast schedules of the International Limited, which will traverse the 334 miles from Montreal to Toronto in 360 minutes and will reach Chicago from Montreal in 18 hours and 15 minutes. Extension of the train telephone service to trains on other parts of the Canadian National system is planned.

The new service was officially inaugurated by Sir Henry Thornton, president of the Canadian National Railways, who talked to Secretary Robert P. Lamont at Washington, D. C. The speed at the time was about 60 miles an hour.

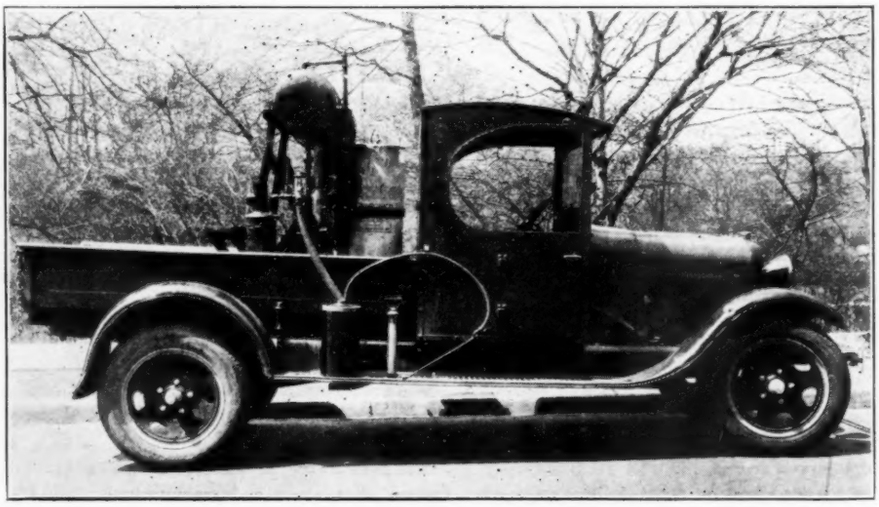
All during the afternoon of April 27, as the special section of the International Limited ran from Toronto to Montreal, calls were made through the equipment to various parts of the United States and Canada. A call was put through to England by way of the transatlantic telephone, but some of the conversation was blotted out by static over the sea.

The apparatus worked perfectly overland at almost any speed the train happened to be making.

Fire Under Broadway, New York City, Cost $170,000.

The fire that burned out thousands of telephone lines under Broadway at Twenty-ninth street, New York City, on April 3 is estimated officially to have cost the New York Telephone Co. $170,000 in labor, materials and other abnormal expenditures.

It was one of the most severe emergencies yet experienced by the company. It was necessary to route calls to numerous local exchanges through toll lines ordinarily serving suburban points. Several days were required to restore service to normal.



A Portable Creosote Spray Outfit Has Proved Its Value to Some Companies.

Here and There in Telephone Work

The Magneto Exchange Repairman; Ringing Power (Ctd.).

By John A. Bracken.

A further application of the principles of alternating current for ringing the bells at subscribers' stations is by means of the magneto-electric generator.

The law upon which the action of a magneto-electric generator depends may be restated as: When the number of lines of magnetic force passing through a coil of wire is changed or varied, there will be induced (the influence exerted by a charged body or by a magnetic field, on neighboring bodies without apparent communication) in the coil an E. M. F. or pressure, of an intensity depending on the rate at which the number of lines of magnetic force cut is being increased or diminished.

In actual practice, continuous cutting of the lines of magnetic force is secured by mounting a number of conductors on an armature that rotates in the magnetic field between the poles of either the permanent magnets or electromagnets. If permanent magnets are used, the ringing machine is called a magneto-generator, or simply a magneto. Electromagnets are used in all large ringing generators.

The two principal parts of the ringing generator are the stationary magnets that produce the magnetic field, and the rotating armature that carries the conductors which cut the lines of magnetic force (the force which cause the attractions and repulsions of magnetic poles) between the magnet poles and thereby create and maintain the E. M. F. or electric pressure required.

Rotation being the simplest form of mechanical motion, it has been universally adopted for sweeping the armature conductors through the magnetic field. Although for simplicity and convenience the magnetic field is usually stationary, the same effects would be obtained by a magnetic field revolving around a stationary armature.

When the armature coil shown in Fig. 1 is revolving at a uniform speed, it cuts lines of magnetic force at the greatest possible rate when in the position shown. This rate gradually decreases as the coil is turned until the conductors are midway between the poles of the magnets. In this position the conductors will move parallel to the lines of magnetic force, cutting none of them.

As the coil further revolves, it will be

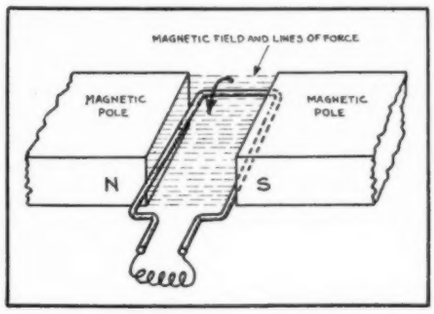


Fig. 1. Principal Parts of the Ringing Generator.

seen that the two sides of the coil will cut the lines of magnetic force in a direction opposite to that shown in Fig. 1, thus sending a current through the coil in the opposite direction to that indicated by the arrows.

It is evident that a continuous rotation of the coil in a given direction will cause a flow of electric current starting at zero and building up to a maximum value in one direction, and then gradually decreasing until it again reaches zero.

It then reverses and builds up to a maximum value in the opposite direction, and again falls to zero. This cycle is completed once each time the armature revolves. The result is an alternating current as distinguished from a uni-directional or direct current.

The characteristics of the central office ringing generator current may be represented graphically by means of what is known as a sine wave curve, such as is shown in Fig. 2. In it the distance of all parts of the curve above and below a horizontal axis or zero line, 1-9, is approximately proportional to the intensity of the induced E. M. F. or of the current generator. The curve above the zero line is assumed to represent the positive condition and that below the line the negative condition.

Starting on the zero line (Fig. 2) at point 1, which corresponds to the value of the E. M. F. when the coil (Fig. 1) is in its upper inactive, or neutral position, the intensity of the induced E. M. F. gradually increases to a maximum positive value at point 2. This corresponds to the point where the coil cuts the greatest number of lines of force, the coil then being in a horizontal position parallel with the direction of the lines to the south pole.

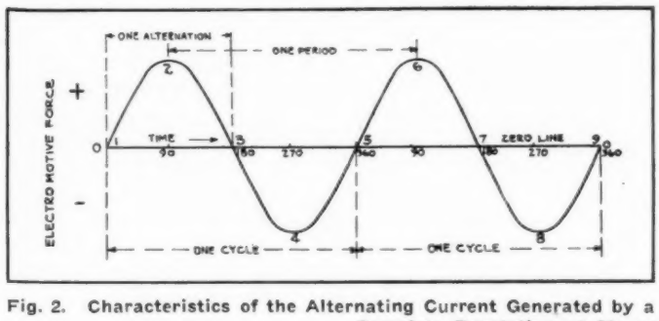
As the conductor moves from this horizontal position, the directional value of the induced E. M. F. remains unchanged, but its intensity gradually decreases until the conductor reaches its lower inactive, or neutral position perpendicular to the lines of magnetic force between the poles where, as indicated at point 3, the E. M. F. is again zero.

At this point the directional value of the induced E. M. F. changes, the curve passing below the zero line, the E. M. F. and current increasing as the conductor sweeps upward into a horizontal position again, where as indicated at point 4 on the curve, it reaches its maximum negative value.

As the rotating conductor moves from its second horizontal position, the intensity of the E. M. F. decreases until, at the end of one complete revolution, or 360 degrees of travel, it again has a zero value, as indicated at point 5 on the curve.

This curve shows clearly that the directional value of the current changes at each half revolution, or half-cycle. The full electric cycle is represented as completed in one revolution of the coil, a second complete cycle of changes in the intensity of the E. M. F. and current during one revolution being represented by the curve connecting the points 5, 6, 7, 9.

The ringing generator used in magneto exchanges for the purpose of furnishing a constant source of ringing current is generally of the bipolar (having two poles)



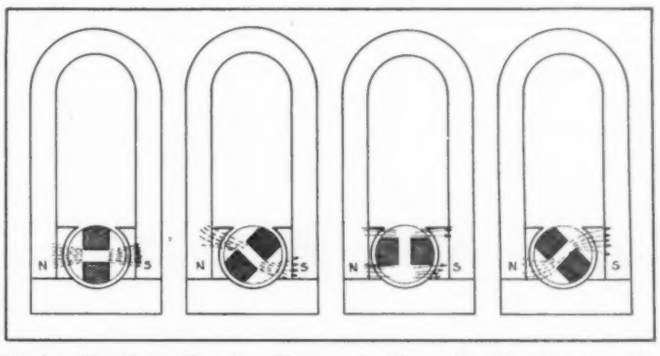


Fig. 2. Characteristics of the Alternating Current Generated by a Ringing Machine.—Fig. 3. Changes in Magnetic Flux During One Complete Revolution of Magneto Ringing Generator Armature.

type and power-driven at a speed of approximately 1,200 R. P. M. (revolutions per minute) or 20 revolutions per second.

The number of complete cycles per second of the ringing generator is the frequency of the current and is found by the formula, $F = PN/T$. In it, F equals the frequency in cycles per second; P, the number of pairs of poles; N, the speed or the number of revolutions of the armature per minute; and T, the time or 60 seconds.

Example: What would be the frequency in cycles of the current furnished by a ringing generator having two poles and running at a speed of 1,200 R. P. M.?

Solution: $F = PN/T$, or $1 \times 1{,}200/60 = 20$ cycles.

Fig. 3 is a conventional illustration showing changes in magnetic flux (the streamings that issue from and return to the poles of a magnet) through the magneto ringing generator armature during one complete revolution, or cycle of 360 degrees.

Indiana Newspaper's Story on Early Independent Equipment.

A recent issue of the Indianapolis, Ind., Sunday Star contained a half-page story on early telephone equipment based upon the specimens collected by Secretary J. K. Johnston of the Independent Pioneer Telephone Association of the United States.

Referring to the thumper type of telephone of the kind used in Chicago in 1879 the story says:

"The telephone business has developed sufficiently that telephones of this type have become a great rarity, so rare, in fact, that when J. K. Johnston, secretary-treasurer and founder of the Independent Pioneer Telephone Association, received one at his organization's office he was as overjoyed as a hen with a new brood of chicks.

The telephone, he says, is one of the rarest models in existence, and it will be an important feature in the collection of telephone pieces in the Rosenwald Industrial Museum in Chicago.

There were a number of instruments of that type in Chicago in 1879, only three years after Alexander Graham Bell exhibited his first working model at the centennial exposition at Philadelphia, Pa. Of course, the Chicago instrument differed materially from the electrical telephone made by Bell. The Chicago telephone, the first in use there, was merely a tight-wire telephone. Springs were attached to it to draw the line tight.

There are about 275 pieces in the association's collection in Chicago, and all of them are rare. Gathering the pieces was begun in 1927. The telephone industry is only a little more than a half-century old, but it has developed so rapidly that Mr. Johnston and his associates feared that the real rare pieces would vanish.

Independent telephone men from all parts of the country cooperated in making the collection, and when a number of pieces had been obtained and placed in storage in Indianapolis Mr. Johnston began to seek a place where they might be exhibited. He visited Washington and New York, but finally it was decided to place them in the Rosenwald museum in Chicago because it is dedicated to exhibits of industrial character.

In the case of the Chicago instrument, the theory of the old savage drum, upon which the Indian, both North and South American, and the aboriginals of Africa and the South Sea Islands broadcast their messages, is adapted to civilized needs. The mallet beat could be heard plainly at some distance from the telephone and the conversation was quite clear.

A number of other instruments, also rare, have been received at the association's office here since the last shipment was made to the museum. These additions will be boxed and shipped to Chicago soon.

Mr. Johnston has not limited the association's collection to rare instruments alone. He has included switchboards and most of the other equipment that accompanied the early development of the telephone.

So far as he has been able to learn, instruments similar to the first one used in Chicago never were used in Indiana. No exchanges were established in this state until the telephone had passed into a stage of development a little further advanced.

There is some doubt as to who owned the first telephone exchange in Indiana. It probably was one of the Bell companies, however, which left the state when the Indiana legislature passed a law regulating telephone rates in 1885.

After the Bell companies left Indiana, the first Independent company established an exchange in Noblesville in 1891. The organizer was E. L. Brown, a druggist of that city. The second Independent exchange was established in Kokomo soon afterward.

Among the earlier Independent telephone pioneers in Indiana is Henry A. Barnhart of Rochester, former congressman, who organized the Rochester Telephone Co. in 1895, cooperating with Rome C. Stephenson of South Bend.

Another interesting instrument that Mr. Johnston has is one of the first desk telephones made by the Stromberg-Carlson Telephone Mfg. Co. in 1894. He also has a working model of Bell's first telephone.

Included in the collection are a number of interesting photographs of early equipment, such as a switchboard installed at Marengo, Ill., in 1893."

The story in the Indianapolis Sunday Star was illustrated with photographs of the Stromberg-Carlson telephone of 1894, three old models of telephone sets, working model of Bell's original telephone and the thumper telephone, a Gilliland 50-line switchboard installed in 1893 in Marengo, Ill., and a switchboard used in Versailles, Ind., in 1888. All of this material is a part of the Pioneer Independent Telephone Association's collection in the Rosenwald Industrial Museum.

Photographs of Henry A. Barnhart of Rochester, Ind., president of the Indiana Telephone Association, and Secretary J. K. Johnston of the Independent Pioneer Association were also reproduced with the article. Mr. Johnston will be glad to receive information relative to other early telephone equipment which may be obtained for the association's collection. He is located in Indianapolis, Ind.

Nutrition Course to Be Offered Bell Company Employes.

In working out the health course for its employes, the American Telephone & Telegraph Co. has conducted regional nutrition conferences recently. The nutrition course is an outgrowth of the general health course for women, offered four years ago, and will be offered only to health course graduates in order to give them more advanced work in one phase of the health course and specialized work in the subject of health.

The course, which has been worked out from the point of view of an adequate diet for the normal, healthy adult, consists of 12 lessons and will cover a study of food values, actual preparation of simple foods, planning of menus and general training in the selection of foods.

Dr. L. D. Bristol, director of health activities of the A. T. & T. Co., was in charge of the nutrition conference, held in Omaha, Neb., and was assisted by Miss Helen Stacey, a member of his staff.

Each conference lasts for two weeks, during which time an intensive training was received by the students in attendance. After the training the students return to their companies prepared to teach nutrition and direct the introduction of the course in the companies they represent.

Armless Boatman Provided with Special Foot-switch Telephone.

John Johnson, who lost both of his arms in a railroad accident some years ago, has a boathouse at Beverly Harbor, Mass. He has many customers who call up to reserve boats, and often fishermen who stay out after mealtime, wish to call their homes to make sure their dinners will be kept ready for them. So John's telephone is quite busy.

When the order came in for a telephone at Johnson's boathouse, Bill Green, installation foreman of the New England Telephone & Telegraph Co. at Salem, found it quite a problem to supply service for a man with no arms. He finally devised an iron bracket to hold the receiver close to the user's ear when speaking into the transmitter. Instead of the hook switch, he installed a switch which is operated by the foot while talking.

New Stock Exchange's Telephone Service

Description of Service in San Francisco's Stock Exchange—About 55 Booths Equipped With Turret Boards Especially Designed by the Telephone Company for the Stock Exchange—700 Calls to Building May Be Transmitted at Once

By Wheeler F. Schall

For two years the Pacific Telephone & Telegraph Co. worked hand in hand with the San Francisco Stock Exchange in order that nothing would be left undone in the installation of the most efficient and fastest possible telephone service in its new building. This, of course, was absolutely necessary, due to the nature of the business carried on in the exchange. The new $2,750,000 home of the San Francisco Stock Exchange, which stands dominating the corner of Pine and Sansome streets, a credit to its city, was officially opened by its president, Sidney L. Schwartz, on the morning of January 6, 1930.

On the Pine street front is the classic keynote of the entire structure, an imposing colonnade of ten graceful Tuscan columns flanked on either side by massive pylons. Through this colonnade members will pass to an ornamented doorway giving direct access to the trading floor. From 155 Sansome street the visitor enters the public lobby, modern in atmosphere. It is walled with dark red Levanto marble; the ceiling is modeled on geometric design and decorated in contrasting gold. From here members of the stock exchange may ascend a broad low marble stairway in the inner lobby which gives another entrance to the trading floor.

Here is the heart of the exchange where every modern facility has been put to use to expedite trading and communication with the outside world, and to broadcast expertly and accurately timely market information. Within this room and ranged along the sides are members' booths in which clerks and messengers of member houses are stationed during trading hours. Orders for the handling of listed securities are received in those booths from outside offices and member firms. These are transmitted directly to the brokers on the floor.

Each booth, some 55 in number, is equipped with a turret board which has been especially designed by the telephone company for the stock exchange. It provides communication by direct line to outside offices of members, to other investment houses, to the Pacific company's central office, and to the switchboard of the exchange. Intercommunicating systems provide service to any of the exchange members, both on the floor or in their station connected to the stock exchange private branch exchange.

This new building has been so wired and equipped by the telephone company that approximately 700 calls to the stock exchange building may be transmitted at one time and 70,000 words per minute spoken. The estimate of the number of calls made from the trading floor to members' offices is more than 5,000 per hour. In addition to the broker's direct line, there are 200 individual instruments connected with a semi-mechanical type private branch exchange located in the building. Included in the telephone equipment are between 15,000 and 20,000 feet of cable containing 13 million feet of wire.

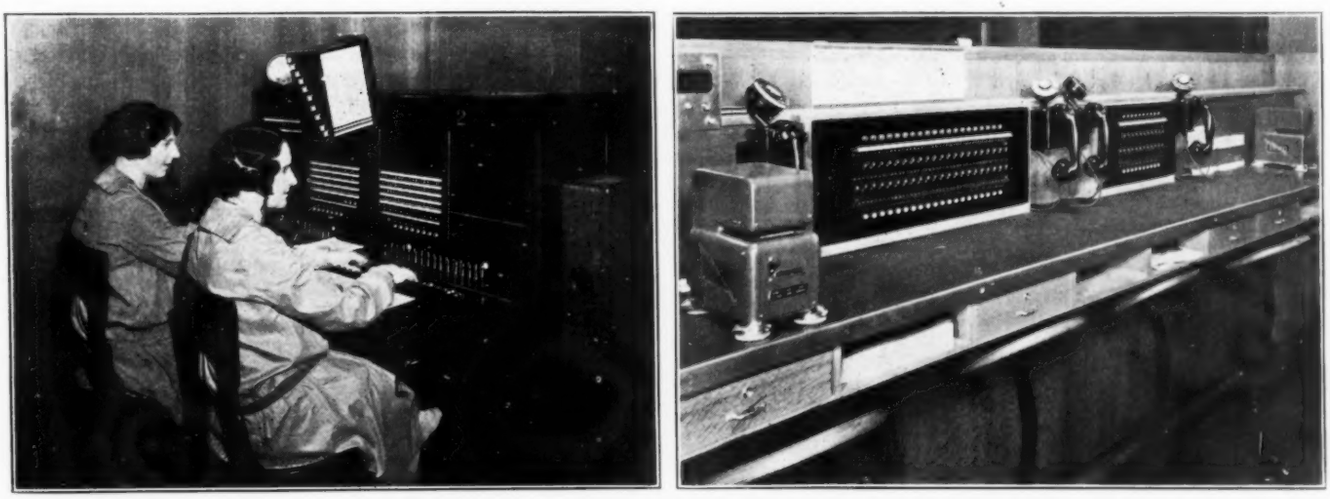
A section of the largest cable in the world has been used to carry this line from our central office to the stock exchange building. It contains 1,400 miles of wire insulated with paper and sheathed in ¼-inch lead. It embraces 1,800 pairs of No. 26 gage wire, terminating on a main frame slightly larger than would be required for a city the size of Santa Rosa.

This main frame is situated in a special room in the basement of the building. It is 27 feet long and 12 feet high. Its vertical side has a capacity for terminations of 10,908 pairs of wires. The horizontal side has a capacity for 28,000 pairs. The cable, wire, and frame serve 55 brokers' turrets in addition to the semi-mechanical private branch exchange system.

The room also houses the line-finder and connector frame, the selector frame, and the line and cut-off frame. There are 11 relay bays and miscellaneous turret equipment and a power plant with two sets of batteries, one for the private branch exchange system and the other for the private line turrets.

The wires are extended from the main frame to four riser terminals, each equipped for 1,800 pairs and located just below the trading floor in the four corners. Inasmuch as all bells have been eliminated from the trading floor, the substation sets have been installed on large backboards adjacent to the four riser terminals.

The turrets just mentioned were designed in San Francisco in 1925 to meet the particular requirements of the stock and bond business in that city. They were used there for the first time. New York and Chicago stock brokers and bond dealers were attracted by their use in the financial section of San Francisco and arranged for their use in their own offices. Their installation in the San Francisco



P. B. X. Attendants at San Francisco's New Stock Exchange—Typical Broker's Booth on Trading Floor New Stock Exchange, Equipped with 10 and 20-Line Turrets.

Stock Exchange building is unique because all private line equipment has been centralized on a cross-connecting equipment frame. This permits a tremendous flexibility of the turrets which are cross-connected so that, should any circuit become defective, it could instantly be replaced by another.

An idea of the immensity of the task of installing telephone equipment in the new building may be obtained from the fact that more than a score of men devoted a total of 17,842 hours to it, spread over a period of 18 months.

On the floor are four trading centers of specially-constructed enclosures, or hollow squares, hand-paneled in Japanese oak, in which are located the nine trading posts. Each post is equipped with a pneumatic tube station for rapid transmission of orders. There are telephone and annunciator systems for quick signaling between posts and between member booths.

In the center of the floor is the latest improved telegraph ticker transmission system, which instantly transmits every transaction to tickers installed all along the Pacific coast from Los Angeles to Seattle. Automatic time stamps, electrically synchronized, accurately record every transaction to a tenth of a minute. These stamps, like every other time device in the building, are exactly synchronized.

On the outside of the trading room is a huge clock with a large second hand in red, tested to a variation of a tenth of a second. The time system automatically rings the gong that opens and closes the market.

Duplicate quotation boards extend for 90 feet along the north and south walls. They carry the full list of stocks and bonds trading on the exchange and are in exact duplicate so that prices, as they are quoted, and statistics of the market, may be visible from every point of the trading floor. Under each quotation board is an electric annunciator system by which members may be summoned from booths.

PLANS FOR FUTURE TOLL DEVELOPMENT.

(*Concluded from page* 24.)

These plans do not contemplate the discontinuance of direct circuits. Where the traffic will justify direct circuits they will be provided in addition to the networks described. When the toll fundamental plans are finally realized, about 92 per cent of the toll board traffic will be handled on a direct-circuit basis, as compared to less than 70 per cent when the plans were outlined in 1924, and the balance of the multi-switch traffic will flow more rapidly.

Specifically in Ohio, with the working out of our toll center arrangements, as contemplated in the fundamental plan, which definitely reduces the number to toll circuits, we are and shall be enabled to provide larger and more efficient circuit groups.

We shall be able to reduce the number of points at which it will be necessary to have toll operators, with the result that training and supervision can be made more intense, switchboard layouts changed with greater ease and, on the whole, handle both the short and the long-haul traffic with economy and better service.

With this development there is also expected from time to time considerable change in types of toll equipment, further extension of A-B operation, introduction of straightforward trunking, toll-line dialing and other betterments.

As these improvements come, there will be fewer toll switchboards to redesign or replace, and the job of rapidly, conveniently and satisfactorily carrying the human voice to all parts of the country—and for that matter the world—will be insured.

Under the toll fundamental plan it is recommended that the tributary operator in handling a call going beyond the toll center connect her customer direct to the toll-center recording operator, who is expected to complete the call while the customer waits on the line. Tributary circuits should be provided, therefore, always on a liberal basis. As a result, the rapid and satisfactory service resulting from the adoption of the CLR method can be further extended and the tributary subscriber will and should receive the same grade of service as the toll center subscriber.

(*To be concluded.*)

Another Telephone Cable to Link United States and Cuba.

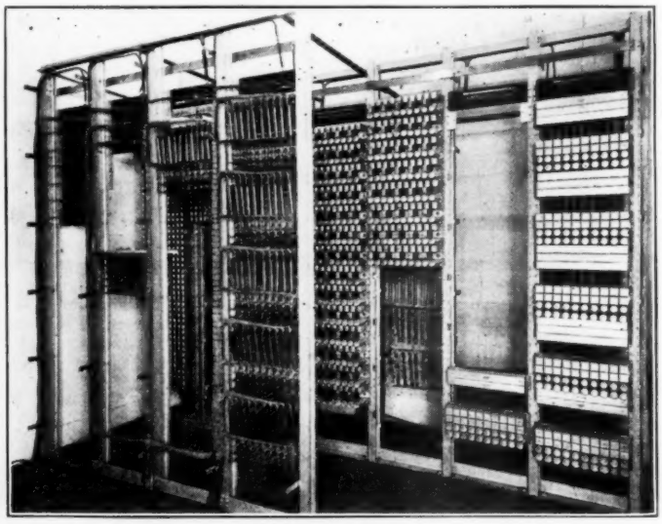
The Cuban American Telephone Co., owned jointly by the American Telephone & Telegraph Co. and the International Telephone & Telegraph Corp., and which operates the submarine telephone cables between Key West and Havana, has just arranged for the laying of an additional cable to take care of the growing telephone traffic between the United States and Cuba.

This cable embodies the very latest developments in telephone cable design and manufacture as developed by the scientists of the Bell Telephone Laboratories. It will span the mile-deep Florida straits between Key West and Cuba, through which flows the mighty Gulf current.

The cable will be approximately 110 nautical miles (127 land miles) long, and will be the first deep-sea telephone cable of such a length to employ a wide range of frequencies up to about 30,000 cycles. Whereas the existing telephone cables between Key West and Havana are of the loaded type, the new cable will be non-loaded. It will be the longest deep-sea telephone cable to be multiplexed by telephone carrier current methods whereby it will provide in a single cable as many telephone circuits as are included in all three of the present cables on this route.

The application of the carrier method, as worked out by Bell telephone engineers for this new cable, to provide three telephone circuits within the compass of a single conductor cable, involves operation over a frequency range so extensive as to require a great range of amplification at the terminals. Indeed, the energy of the

Main Frame for Incoming Cable Feeding San Francisco's New Stock Exchange



Relay Rack of Stock Exchange.

voice currents will be amplified a billion-fold at either end of the cable. It is this amplification, combined with apparatus such as attenuation equalizers and electrical filters, which permits the operation of the wide range of frequencies necessary to give the three circuits which the new cable provides.

The new cable includes a central conductor containing about 500 pounds of copper to the nautical miles, surrounded by paragutta insulation. Outside the paragutta is spiralled a layer of copper tapes, which provides a return path for the electric current. This in turn is surrounded by an impregnated fiber wrapping, and the whole is protected by an outer sheathing of armor-wires closely wound around it. This protective armor is 1/10 of an inch thick in the middle portions of the cable which will lie in the depths of the straits, but thickens toward the shore ends where the cable will be more exposed to damage by rubbing against the bottom, or by being fouled by ships, nets or the like.

The paragutta insulation to be used has been developed after extensive research and experiment in the Bell Telephone Laboratories. It offers special advantages for use in deep-sea telephone cables of this type. Previous cables have generally been insulated with gutta-percha or similar materials and rubber. While in paragutta similar new materials are used, they are so purified and combined as to give far better electrical properties, at the same time having mechanical properties very like those of gutta-percha.

The new cable, therefore, represents a highly practical applictaion to public use of technical developments worked out over a considerable period of time by the Bell system engineers.

Oklahoma Association to Hold District Meetings This Month.

The first of the 1930 series of district telephone meetings of the Oklahoma Utilities Association will be held this month, according to W. O. Mills of Skiatook, chairman of the telephone division. Dates and places of these meetings as agreed upon by the telephone division are: Tuesday, May 20, at Durant; Wednesday, May 21, at McAlester; and Friday, May 23, at Skiatook. Other district meetings will be held later in the year.

Call Made to South America at Rotary Conference.

At the conference of the 52nd district of the Rotary club held at Bristol, Tenn., recently, W. N. McAnge, Jr., president of the Inter-Mountain Telephone Co., who acted as general chairman of the conference, arranged an international telephone hookup over which John Carlson of Kansas City, representing the Rotary club at the Bristol conference, extended greetings to Dr. Alfreo Colmo of Buenos Aires, Argentina, district governor of the South American Rotary club.

Group at Bristol, Tenn., Listening-In on Conversation With Rotarian District Governor in Buenos Aires, Argentina.

In his conversation Mr. Carlson sent greetings from the 52nd district of the Rotary meetings to the 62nd district, and stated that the conference was stressing the sixth object of Rotary—the advancement of understanding, good will and international peace through a world fellowship of business and professional men united in the idea of service.

The call was the first ever made to a South American city from the state of Tennessee.

He Talked Too Long; Is It Crime to Shoot Booth Monopolist?

Telephone pay stations should be used with discretion and courtesy. Too often four or five people are compelled to wait long outside a booth while the triumphant one within, secure by virtue of his five-cent lease, carries on a rambling and gossipy conversation. The restive queue is unanimous in thinking that he ought to be shot. And one day recently in New York City he was!

A young man was talking over the telephone in the public booth of the Eighty-sixth street subway station. Outside, a second youth paced back and forth impatiently, waiting for the conversation to end.

The man inside talked on and on. The man outside grew desperate. Suddenly he pulled a gun from his pocket, fired into the booth and ran away. Passers-by came to the aid of the wounded man, hung up the telephone receiver and took the talker to the hospital. Reports said that he would be unable to telephone from a booth for some time.

The story fairly bristles with morals:

1. Never talk at length on a public telephone. You may get shot for it.

2. Never shoot at a man in a telephone booth. Even after he gives up the instrument, you are not free to use it.

3. Never carry a gun. You might be tempted to use it to point a lesson in manners.

The incident as related is obviously a real happening, says the New York Times. Any fabricator of a yarn of this kind would surely have made a woman the talker—and the victim.

Stock Securities "Junkman" Wanted Listing of "No Telephone."

Roland M. Smythe, who for the greater part of the last half century had conducted one of the most unusual businesses in the world, recently died suddenly at his home in Brooklyn, N. Y., at the age of 76. His job was the purchase and sale of old and obsolete stocks. Some of his customers acquired shares they thought might bring them later profit, some were led only by a desire for distinctive wallpaper.

For the past 30 years he had carried on all his affairs without the aid of a telephone. One of the earliest subscribers, he gave it up as being too wearing on the nerves.

He realized the telephone directory's place in business, however. One of his occupations for three decades was trying to persuade the company to list him as "Roland M. Smythe, 2 Broadway, No Telephone." The company was not persuaded, so his customers either visited him or sent telegrams. He received a lot of telegrams.

One phase of his trade was his ability to appraise the value—if any—of old securities. He was called on by lawyers, banks and courts—by J. P. Morgan & Co., Speyer & Co., and others—and in his spare time he wrote books on the subject. Next to the flyleaf of "Valuable Extinct Securities" is a picture of the author and in big block letters the words "No Telephone."

News Items About England's Telephones

Exhibits Made by the Telephone Development Association at the Ideal Home Exhibition—Service Between Berlin and Moscow Opened on April 5—Results of Studying 500 Normal British Telephone Conversations—Miscellaneous News

By TELEPHONY'S Special London Correspondent

The Telephone Development Association —with good reason, as past results have shown—always regards the Ideal Home Exhibition as a specially good opportunity for impressing on the public the value of the domestic telephone.

Ideal Homes and Telephony.

One of the first things which catches the eye in the New Empire Hall at this year's exhibition, is the name of the association in red and green block lights. Beneath is the stand, an attractive feature of which is a replica of a telephone kiosk, in addition to the exhibits displaying the various sides of the telephone industry.

A competition has been organized, with a year's free telephone rental as the prize. The prize, of course, can only be won by people who at present are not subscribers: but anyone who is already a subscriber may nominate a friend who is not. By this means, a most useful list of names and addresses of people in whose minds telephone-consciousness has at any rate been aroused will be obtained, and these will afterwards be circularized and followed up. Previous competitions on similar lines have shown that the winners invariably continue as subscribers after the free period has expired.

For those who can be persuaded then and there to become subscribers, there is a post office contract officer in attendance at the stand, ready to clinch the bargain immediately.

One of the new school demonstration sets is among the exhibits. A special press advertising campaign is calling attention to the stand and to the competition, and a considerable percentage of visitors to the exhibition will certainly go away with the thought of a telephone as a convenience in the home and with the desire to have one.

Demonstration Sets for Schools.

With a view to the instruction of children in the proper use of the telephone the Telephone Development Association has purchased a number of demonstration sets specially-designed for school use. These sets, one of which is on view at the exhibition, consist of two telephone instruments (one having a dial of the director type and the other of the non-director type), mounted on bell boxes, and connected with a 15-cell battery contained in a portable wooden box.

They are assembled by means of eight terminal screws and an ordinary electric light switch turns on the current, so that with the aid of simple instructions, it will be easy for a teacher having no technical knowledge whatever to prepare a set for use. A small electric lamp on each bell box glows faintly when the current is switched on. When the caller lifts his receiver, the lamps glow more brightly; and on dialing, they flicker showing the impulses going over the line.

Moreover, since both lamps operate together, the person being called can also watch the process of dialing. On its completion, he lifts his receiver, which causes the lamps to glow still more brightly. This indicates to the caller that connection is established and that conversation can begin. There is sufficient length of conductor to allow of a demonstration with an instrument at either end of a large classroom or in adjacent rooms.

Each set will be accompanied by a "talk" on the use of the telephone, which has been prepared by the association in conjunction with the Post Office whose officials are also cooperating by supplying copies of the local telephone directories.

The association offers to lend the sets, of which there are 30, free of all charge to any education authority that wishes to use them. Several authorities have already given their sanction. The association suggests that a preliminary meeting of teachers who will eventually have charge of the instruction, should be arranged in each district, so that its representatives may have an opportunity of saying a few words on the correct telephone usage.

No Press Messages!

A telephone service between Berlin and Moscow was opened on April 5. There is an agreement between Germany and Russia which provides for unrestricted conversations, whether press, private or official.

The Moscow Post Office, however, has informed press correspondents that they may not use the telephone. They explain that press messages are subject to censorship, and this cannot be efficiently applied to telephone conversation.

Find-the-Doctor Exchange.

It is reported that a special medical telephone exchange which will put patients in touch with their doctors at any time of the day or night, has been established by the telephone authorities at Budapest.

All doctors, when not at home, will keep the exchange notified of their daily movements and of the telephone numbers which will find them at certain times. Then anyone who wants attention will merely have to state his doctor's name to the exchange, and the operator will be able immediately to forward the call to the proper place.

Briton's Poor Vocabulary.

An analysis of 500 normal British telephone conversations recorded in shorthand for the London "Daily Express" shows a remarkable similarity, both in the number of words used and the frequency of their use, to the list of words used in American telephone talks, recently compiled by the Bell Telephone Laboratories.

"I" and "you" again take first and second place, "I" with 3,999 times used, as against 3,990 in the American list; "you" with 3,540 as again 3,640. "The," placed third, was used exactly the same number of times in both countries. "A" and "on," as in the American list, were fourth and fifth, followed by "to," "that," "it" and "is." In fact, as in America, the first 25 words were mono-syllabic. "Time," the first noun to be tabulated, came 61st.

Altogether, 2,237 words were used, about one-tenth of Shakepeare's vocabulary. "We cannot, however," says another newspaper in commenting on the experiment, "all acquire the vocabulary of Shakespeare. And certainly no sane person would favor an enlarged one for the woman who buys the leasehold of a telephone call box for 2d., and has no difficulty in making her paltry assortment of 2,000 odd words stretch from Charing Cross to Land's End."

Direct London-Aberdeen Telephone.

The laying of a 68-mile underground telephone cable between Dundee and Aberdeen, which has just been started from the Dundee end, will, when completed, place London and Aberdeen in direct telephone communication for the first time.

Specially insulated wires, too, have been included for the use of the British Broadcasting Corporation in making experiments in radio. The cable will contain over 100 pairs of wires.

The work of making the "tunnel" will take, it is expected, about six months.

"Personal" Calls for Ireland.

The Saorstat Ministry of Posts and Telegraphs has announced that, as from April 1, person-to-person calls are now being permitted on the trunk lines throughout the Irish Free State. A small extra charge is being made. The British Postmaster General stated that the Irish personal service is open to British subscribers.

The Postmaster-General has given an invitation to all members of Parliament to

(*Continued on page* 38.)

Grace of Line and Beauty Unsurpassed—

THE MONOPHONE is one of the most strikingly beautiful telephone instruments ever made available to the public. When, several years ago, the Strowger designing staff undertook to combine in one instrument artistic merit with the mechanical perfection of the old style telephone, the wiseacres shook their heads and said "It can't be done!" But the result speaks for itself. Its successful accomplishment has changed the design trend of the industry.

Telephone companies should not lose sight of the practical value of the artistic appeal of the Monophone. Manufacturers of typewriters, kodaks, even kitchen cabinets are cashing in on the public's demand for beauty, as well as utility. Both men and women are instantly attracted by the grace of line and attractive appearance of the Monophone—and this instrument in colors has created a sensation wherever it has been shown.

An actual personal demonstration of the Monophone to prospects will bring surprising results, both in new business and extensions. Why don't you order several Monophones—today—and give this method a trial?

Automatic Electric Inc.

Manufacturers of

STROWGER AUTOMATIC DIAL TELEPHONE AND SIGNALING SYSTEMS

Factory and General Offices: 1033 West Van Buren Street, Chicago, U. S. A.

Sales and Service Offices in All Principal Cities

GENERAL EXPORT DISTRIBUTORS

The Automatic Electric Company, Ltd., Chicago

In Canada . . . Independent Sales and Engineering Co., Ltd., Vancouver

In Australasia . . . Automatic Telephones, Ltd., Sydney

In Japan . . . Automatic Telephones Ltd. of Japan, Tokyo

ASSOCIATED COMPANIES

American Electric Company, Inc. . . . Chicago

International Automatic Telephone Co., Ltd., London

Automatic Telephone Manufacturing Co., Ltd., Liverpool

The New Antwerp Telephone and Electrical Works . . . . . Antwerp

UTOMATIC

STEMS

When writing to Automatic Electric Inc., please mention TELEPHONY.

(*Concluded from page* 34.)

visit the Victoria telephone exchange—the nearest exchange to the House of Commons—and to see the operators at work. Every directory, of course, extends a similar invitation to all subscribers to visit its local exchange, but it is doubtful whether very many people take advantage of general invitations of the kind. More appreciation of the work done would probably be shown if people could be induced tto visit the exchanges.

No doubt it is with some such idea that the Postmaster General has issued his special invitation to his colleagues in the House. And certainly they, if anyone, are in need of first-hand knowledge of a subject on which they are so frequently expected to produce intelligent comment or criticism.

Mattoon, Ill., Talks to South America; Son Calls Mother.

R. A. Lumpkin, president of the Illinois Southeastern Telephone Co., Mattoon, Ill., reports that one of the first messages over the newly-established direct radiotelephonic circuit to Chili, South America, was made with a subscriber of his company.

The call was placed by Chester D. Ashbrook, an electrical contractor of Santiago, Chili, to his mother, Mrs. Mary A. Ashbrook of Mattoon. The air line distance was about 6,000 miles. However, the distance the voice traveled was over 7,000 miles. This was due to the fact that the call was routed by telephone wires from Mattoon to Lawrenceville, N. J., where a short-wave radio station relayed it to Buenos Aires, from which point it was carried by wireless to Santiago, the capital of Chili, which is on the west side of South America.

The call was made on April 5 and Mrs. Ashbrook stated that she could converse with her son as though he were actually in the same room. However, she was so excited by the idea of talking over such a great distance that she forgot what her son had said to her during the connection.

Personal Notes from the Field

William J. Boyd, treasurer of the Illinois Bell Telephone Co., resigned on April 2, after more than 48 years of continuous service in the telephone organization, all of it in Chicago. He retires from the service under provisions of the company's pension plan.

Going to Chicago in 1881, Mr. Boyd became one of the famous boy operators who preceded the girls in the early years of the telephone. He handled the plugs and cords in the first Chicago central office, then located on LaSalle street in a building recently razed on the site of the new One North LaSalle Building. After two years he became a collector, then in 1893 cashier and paymaster. He was elected treasurer in 1920.

Mr. Boyd is succeeded by A. R. Bone, secretary, who also becomes treasurer.

William Hubbard, of Elgin, Ill., member of the Pioneer Independent Telephone Association of the United States, was confined most of last month in the Sherman hospital, Elgin. During that time he had a visit with his old-time telephone and telegraph friend, Francis Wheaton, artist, of New York City.

Mr. Wheaton and Mr. Hubbard learned telegraphy together and Mr. Wheaton was manager of the first commercial telegraph office in Elgin, working for the Atlantic & Pacific Telegraph Co.

Mr. Hubbard was the first telegraph operator in Greeley, Colo., in May, 1870. The "old-timers" had not met since the 70s.

Edward E. Clement, for many years prominent in the telephone industry back in the pioneer days, is now practicing law in Washington, D. C. In a recent letter, he says: "There used to be an old saying, 'Once a telephone man, always a telephone man.' I think this is measurably true, and I realize it all the more keenly when I read TELEPHONY, and especially the reports of conventions in which many of my old friends are still figuring.

"However, I am a firm believer in the future of the telephone business and that the later developments will be greater than any that have gone before."

Mr. Clement was one of the leading figures in Ohio telephone affairs years ago, being connected with the North company

Edward E. Clement, Active in Independent Field in Pioneer Days, Predicts That Developments in Future "Will Be Greater Than Any That Have Gone Before."

for a period, and having many telephone patents to his credit.

Walter A. Cook has been appointed plant superintendent of the Northern Ohio Telephone Co. at Bellevue, Ohio, succeeding the late J. A. Campbell.

Mr. Cook has been connected with the telephone industry since 1897. In that year he started to work as trouble-shooter at Toledo for the Central Union Telephone Co., which company was taken over by the Ohio Bell Telephone Co. He remained with the Toledo office for a period of three years, during which time he was advanced to chief inspector.

From 1900 until 1902 he was associated with Barber & Brailey in the engineering, construction, and building of Independent telephone plants. For the 20 years prior to 1922, Mr. Cook was also superintendent of outside plant for the Springfield-Xenia Independent Telephone Co., operating Independent telephone plants at Springfield and Xenia, Ohio.

From 1922 until 1925 he was associated with the Ohio Bell Telephone Co. as engineer in charge of outside plant at Dayton, Ohio, and for the past five years prior to January 1, 1930, he acted as plant superintendent for the United Telephone Co. with 21 exchanges and headquarters at Bellefontaine, Ohio.

The wide experience and knowledge of telephone construction and maintenance gained by Mr. Cook in the past 33 years in the telephone industry should prove him to be a very valuable man in the organization of the Northern Ohio company.

Frank X. Staub, Fort Wayne, Ind., commercial engineer of the Home Telephone & Telegraph Co., was reelected president of the Home Telephone Athletic Association at the annual organization meeting of the board of directors on April 14. Mr. Staub has been in the employ of the company since 1895. He has taken an active interest in the association since its foundation several years ago. The association now has a membership of 375.

Carl A. Kraege, who has had a number of years of experience in different branches of telephone work, including selling and operating, has been appointed to serve as resident manager at La Porte, Ind., of the newly-formed Indiana Commercial Telephone Corp., of which J. F. O'Connell, Madison, Wis., is president and Charles R. Hurmence of Elkhart, Ind., is general manager.

Mr. Kraege was educated at Annapolis as an officer for the United States Navy, and is a graduate engineer of the University of Wisconsin. He has had considerable experience in telephone directory work, and has worked in the offices of the Kansas Independent Telephone Association at Topeka, Kans., there securing first hand information on public relations work, rate cases before the public service commission and on general telephone business.

For a while he served as manager of the Des Moines office of the American Telephone Advertising Co. of Kansas City, Mo. Later he became general manager for the Kansas Telephone Co. at Topeka, and for the past year has been a field man with the Associated Telephone Utilities Co.

James N. Cox, president and general manager of Gainesboro Telephone Co., Cookeville, Tenn., was honored recently at a banquet given by the Gainesboro Telephone Co. in cooperation with the Lions Club, by being presented with a bronze plaque. About 200 were present at the banquet, the employes of the Gainesboro company, several officials of the Southern Bell Telephone & Telegraph Co. of Nashville being guests.

The plaque, which is in the lobby of the new building of the Gainesboro Telephone Co., contains the following engraving: "This Tablet is Dedicated by Associates and Fellow Employes to James Nathaniel Cox, Who, Serving in Every Capacity from Operator to President, Has, by His Loyalty and Progressive Leadership, Directed the Gainesboro Telephone Company from Its Organization in 1896 to Its Present Development; and Largely Through Whose Efforts This Building Has Been Erected."

An editorial written by the associate editor of the Putnam County Herald published at Cookeville, Tenn., April 10, spoke very highly of Mr. Cox. In part, it said: "Last Monday night a Cookeville citizen, James N. Cox, terminated a noteworthy career by one of the most brilliant tributes ever paid to a man, coming, as it did, from the heart of many friends and employes.

Mr. Cox had a stormy career as a young man. He struggled in the post office at Gainesboro when little more than a kid, getting the mail at 12 o'clock in the night and sending it out at five in the morning, besides working all day. It has never been learned how he got his incentive and his consuming desire to enter the telephone game. When a telephone was a curiosity, as television is today, and as unusual, he, with a friend, rigged up a line from the home of one to the other and it really worked. That was probably the birth of ideals which were realized Monday night.

In 1908, after operating an exchange in Sparta and Gainesboro, Mr. Cox migrated to Cookeville, where he has lived since, and where he has seen the dream of an earlier day come to a triumphant climax.

But the going was not easy. Success It must be beckoned, and worked for; it is gratifying that this day should come when it can be added to the laurels of the living instead of the dead."

The same day Mr. and Mrs. Cox also celebrated their 33rd wedding anniversary, does not come to those who sit and wait.

James N. Cox, of Cookeville, Tenn., Was Recently Honored by Associates with the Presentation of a Bronze Plaque Which Has Been Placed in the Lobby of the New Telephone Building.

and the telephone company was also launched upon its 34th year of public service. Mr. Cox has been a director of the United States Independent Telephone Association for several years, and is a member of the Pioneer Independent Telephone Association of the United States.

W. R. Abbott, of Chicago, president of the Illinois Bell Telephone Co., has been elected a director of the Chicago & Northwestern Railway, succeeding Cyrus H. McCormick, resigned.

Obituary.

George Mayes, who installed a telephone system at Sanger, Denton county, Texas, and for many years owner of the Sanger Telephone Exchange, died on March 28.

Mr. Mayes, a native of Kentucky, went to Texas about 40 years ago and lived at Sanger until two years ago, when he sold his telephone system and moved to Dallas.

Surviving him are his wife, a daughter, Mrs. R. L. Vann of Dallas, a son, George W. Mayes of Dallas and three brothers and sisters.

Lewis E. Gettle, chairman of the Wisconsin Railroad Commission, died at Madison on March 18 at the age of 67 years. He had been in poor health for nearly a year.

Mr. Gettle's first state position was that of library commissioner, which he held from 1894 to 1898. During this term he studied law at the University of Wisconsin and graduated in 1898. After practicing law at Edgerton, Wis., for several years, he was elected in 1911 to the Wisconsin Assembly, where he served one term.

From 1912 until 1915 he served as secretary of the Wisconsin Railroad Commission, being appointed railroad commissioner in 1921 and reappointed in 1927. In 1928 he was president of the National Association of Railroad & Public Utility Commissioners.

D. J. Johnson, treasurer of the Texas Independent Telephone Association, died at Santa Anna, Texas, on April 4. Early this year he was confined to his bed with flu and pneumonia from which he did not fully recover before another attack.

Mr. Johnson was born in Nashville, Tenn., April 22, 1877. He went to Texas when he was about 14 years old. His first connection with the telephone business was in East Texas with the Southwestern Bell Telephone Co. In 1917 he became associated with the West Texas Telephone Co. at Brownwood. He remained with this company until 1925 when he purchased the Santa Anna exchange from the late A. U. Weaver.

He had built up and improved the exchange at Santa Anna until it is one of the best small exchanges in the state. He had recently erected a new building and installed new common battery equipment. In the five years he operated it, the plant was entirely rebuilt.

Ever since his connection with the Independent telephone business he had been active in the affairs of the Texas Independent Telephone Association. In 1923 he was elected to finish out the term of Treasurer J. C. Paxton. He was reelected at each succeeding convention.

Mr. Johnson was prominently identified with the civic affairs of his home town. He was organizer and past president of the Lion's Club, member of the Knights of Pythias, and the Episcopal church. He is survived by his widow, a son and two daughters.

Colonel John P. Bratt, for a number of years a prominent figure in the telephone world in Nebraska, died April 25 at his home in Lincoln, of pneumonia. He had been in ailing health for several years. He was aged 74 years.

He was a brother of Alfred Bratt, deceased, and with him owned the controlling interest in the Monroe Independent Telephone Co., which served eight exchanges in central Nebraska. This property they operated for a number of years, selling out recently to the Continental company.

Mr. Bratt won his title of colonel by military service. As a pioneer he served in Indian warfare in the early days, and commanded the Second Nebraska regiment in the Philippines, leading it in the assault on Manila, in 1898. Col. Bratt was a banker and heavily interested in utilities. He leaves a widow and one daughter.

The Tributary Chief Operator and Toll

Responsibility of Tributary Chief Operator as Covering Two Phases of Relations Between the Company and Subscribers—Paper Presented at the Traffic Conference During Convention of Up-State Telephone Association of New York

By Miss Helen M. Carey,

Chief Operator, Northern New York Telephone Corp., Keene, N. Y.

In spite of the fact that many offices have been changed from toll centers to tributaries, as tributaries they still have a distinct responsibility in regard to the toll service rendered their subscribers. The tributary chief operator is still responsible for maintaining proper relations between the company and her subscribers, even though her office is not handling all toll calls which originate at her office.

This responsibility might be said to cover two phases: First, that of seeing that all toll calls are handled to the satisfaction of her subscribers, and, second, that of improving and stimulating toll business in every possible way.

For the handling of short-haul traffic between her office and the points to which she is privileged to handle such traffic, she is, of course, directly responsible. She must see that these calls are handled by her operators in the shortest possible time and in a most accurate and courteous manner.

These short-haul calls may seem unimportant, if taken singly, but if we analyze our toll traffic we will find that a large proportion of the traffic originated at any office is composed of these short-haul calls. It may easily be seen, therefore, that the greater the speed with which these calls may be handled, the better satisfied the subscribers will be, and the more revenue will be obtained.

The responsibility of the chief operator at the tributary office for the handling of that traffic which is passed to the toll center—the so-called "long haul" traffic—is not so apparent, however, and it is particularly of this phase that I wish to speak.

To the subscriber, our toll centering plan means practically nothing. The same is true of our system of reporting criticisms or adverse comments. As a rule, when he places a toll call, all he is interested in is whether or not he will obtain satisfaction on that call. It makes no difference to him who does the work, so long as he reaches his party without unnecessary delay.

When a subscriber does not obtain satisfaction, he naturally reports it to his own chief operator. To him, she represents the company and should be able to obtain satisfactory adjustment for him. When such reports or criticisms of the service are received by the tributary chief operator, the company also holds her responsible for seeing that they are handled carefully and, if possible, brought to a satisfactory conclusion.

If the criticism or adverse comment is in regard to a call handled by some other office, it should nevertheless be accepted by the tributary chief operator, without in any way giving the subscriber the impression that some other office should be held responsible.

If there is anything that increases a subscriber's dissatisfaction with a call which he already feels was not handled properly, it is having the employe to whom he had made his report "pass the buck" to someone else.

Let me illustrate a case in which a tributary chief operator preserved the friendly relations between the company and one of her subscribers by the skillful handling of a complaint on a toll charge. A subscriber, a heavy toll user, reported to her that he had placed a station call to New York City to a certain business office. Due to NC conditions the call was not completed until after business hours, and at that time the person who answered the telephone proved to be the janitor of the building.

The subscriber talked to him, thinking he might reach someone who could talk business, but he was unable to do so. He, therefore, questioned the fact that he was charged for the call, when he had received no satisfaction. She accepted his report, saying she would try to secure an adjustment of the charges, at the same time explaining that a person-to-person call would have eliminated the difficulty.

By taking the stand that if the circuits between her office and the called point had been adequate, the subscriber would have had his call during business hours, she was able to have the charge canceled. When this was reported to the subscriber, he was convinced that the company wished to play square, which made him a better satisfied subscriber.

Should the tributary chief operator at any time feel that her subscribers are not receiving as prompt attention from the toll center as they should, it is her duty to report this fact to the toll center chief operator at once. Such action on the part of the tributary may often prevent a serious complaint.

She should never feel that, since the call is in the hands of the toll center, her responsibility ceases, but, as far as possible, should assist her subscriber in every way, and at the same time cooperate with the toll center in improving this service.

The tributary chief operator may often assist in the handling of toll calls by explaining to subscribers the proper way to file a call. Occasions for this may arise when subscribers report to her that they have been charged for toll calls at the person-to-person rate, when they wished the station rate.

As an instance, let me quote the case of a certain subscriber who had been in the habit of obtaining the numbers for his calls to subscribers in nearby offices from the local directory of his district. He lost his directory, however, and passed his calls by name, not realizing until he received his bill that he was being charged at the person-to-person rate.

A troublesome complaint resulted, involving a substantial refund, as well as annoyance to the subscriber. If the tributary operator had questioned this man when he filed the calls, she might have learned that he desired station-to-station service and thereby prevented his criticism.

How can the tributary chief operator improve and stimulate toll business from her office? There are many obvious ways in which this can be done, such as improving the service rendered by the operators handling the calls, one or two instances of which have been mentioned. There are other ways which are just as important, but which are often overlooked.

For instance, the tributary chief operator and her operators are in a better position to note frequent busy conditions on the trunks between her office and her toll center, because in nearly all cases there are more calls originated at the tributary for the toll center than are placed at the toll center for the tributary.

When such a busy condition is noted, it should not be taken as merely "one of those things which cannot be helped," but should be reported to her superior in order that steps may be taken to relieve it.

There may be cases on her exchange of rural lines which are heavily-loaded, on which lines there may be subscribers who actually are, or would be potential heavy toll users, but whose business is being stifled by this overloaded condition. Such cases should also be reported to her superior so that proper steps may be taken.

Often, the tributary chief operator may be able to suggest that, due to interference, certain subscribers be changed from one rural line to another, either for their own benefit or for the benefit of the other subscribers on the line.

Heavily-loaded trunks to private branch exchanges should also be reported in the same manner.

The reporting of noisy conditions or poor transmission on any of her subscriber's lines is also the direct responsibility of the tributary chief operator. Such conditions may not always be apparent on local calls but on toll calls—all of which, whether incoming or outgoing, short or long haul, should receive a certain amount of supervision from the tributary operator, as they are often very noticeable.

These difficulties may be due to weak batteries on magneto lines, or to instrument or line trouble, and should be reported promptly and followed up until the condition is cleared. The elimination of such trouble is one of the best means of stimulating toll business.

No attempt has been made to cover all the various aspects of the responsibility of the tributary chief operator toward the toll service rendered to her subscribers, but I believe enough has been said so that we may realize that, even though the tributary is relieved of the burden of handling a certain portion of the toll business originated at her office, she is not relieved of the necessity for keeping her subscribers satisfied.

She is still the chief operator of her exchange, and, as such, she is in the best position to know whether or not her subscribers are satisfied. If they are, a great deal of the credit is due to her; but if they are not, she is at fault for not taking the proper steps to make them so.

Private Branch Exchange Activities

Discussion of Importance of Proper Operation of Private Branch Exchange and Program Adopted to Assist in Improvement of Service—Paper Read at Annual Traffic Conference of Up-State Telephone Association of New York

By Miss Mildred N. Orr,

Chief P. B. X. Supervisor, New York Telephone Co., Buffalo, N. Y.

Lately we have come to realize more and more how much the quality of telephone service, as a whole, depends upon the proper operation of private branch exchanges. Approximately 20 per cent of the telephones in our area are served through P. B. X. switchboards, and, as the calling rate is higher than the average, a P. B. X. operator is involved in establishing connection on about one out of every four or five calls.

In the Buffalo city districts, for example, there are approximately 125,000 stations, of which 25 per cent are served through P. B. X. systems; there are 6,000 central office trunk lines serving 1,500 P. B. X.'s. Daily, 90,000 local calls originate at these P. B. X.'s; 70,000 local calls terminate at these P. B. X.'s, and 3,500 toll calls (outgoing or incoming) through these P. B. X.'s.

The subscriber's opinion of the service depends primarily on:

1. Whether or not his connection is established promptly and accurately.

2. Upon the attitude and interest displayed by the operating people he encounters in securing the connection.

3. The answer of the called telephone.

The subscriber either does or does not like the service he receives, and he seldom stops to think whether operating employes or P. B. X. attendants are responsible for any delays or interruptions that may occur.

It is important that no matter how good a job our central office employes may do, the service will still be affected by frequent delays and irregularities unless the quality of P. B. X. operation is placed on a high plane.

Recognizing this situation, we and most other companies of the system have formed a definite program to assist the customers and attendants at private branch exchanges to improve their operation. This program consists of three principal steps:

1. The oganization of forces of carefully selected and trained P. B. X. supervisors who visit each P. B. X. in the principal towns and cities at frequent intervals with a view to determining the features of operation affecting the service as a whole, and suggesting steps for improving them.

2. Establishment of P. B. X. training departments where the present force of P. B. X. operators is being retrained, and where applicants for P. B. X. work may be trained in advance.

3. More frequent inspection and improvement in the maintenance of P. B. X. equipment—provision of auxiliaries to the service, such as lists of frequently called numbers, changed numbers, etc.

I will try and give you a description, based on the city of Buffalo, of how the organization functions:

We have established a private branch exchange department, which consists of:

1. A P. B. X. inspection department.
2. A P. B. X. training department.

The P. B. X. inspection department is divided into three districts: Buffalo City district, which includes Buffalo West and Buffalo East, having five central offices each, and Buffalo suburban district.

To each of the Buffalo districts, P. B. X. supervisors are assigned, according to the number of P. B. X. boards involved. These boards are visited periodically, larger ones once a month, the smaller ones less frequently. These supervisors are young women who have been carefully chosen. They are known to be service experts and have personality, poise, tact and aggressiveness.

If it happens to be the P. B. X. supervisor's first visit, she introduces herself to the subscriber, his representative or office manager, as "Miss Brown of the P. B. X. department of the telephone company." She states that she would like to observe the work of the P. B. X. attendant, if there are no objections, as she would like to be of any assistance possible in improving service conditions or operating methods. Her procedure is as follows:

1. She observes the speed of answer, the announcement of the firm name, personal interest as reflected in tone of voice.

2. She then tests equipment for: Appearance of central office trunks at switchboard; answer of central office; ragged or frayed cords, etc., and refers any conditions which need attention to the plant department.

3. She observes the attendant's passing of calls to the local and long distance operators—overlapping operations, etc.

4. In a diplomatic manner she makes constructive suggestions to the P. B. X. attendant with respect to any of the conditions observed.

5. She interviews the subscriber or his representative, if possible, and advises him of any features of the operation which she feels could be improved and be of benefit to the firm.

A card record of each private branch exchange switchboard is maintained, and upon the return of the P. B. X. supervisor to the office, she enters the necessary information on the card, keeping a record on a check form of all points observed.

Detailed traffic studies are kept at P. B. X. boards upon request of the commercial department, division traffic engineer or customer.

I believe that it is necessary for all of us to recognize that P. B. X. attendants

are operating people like ourselves, that we are all involved in giving good telephone service, and that we must cooperate to the fullest extent in order to secure the quality of service we want to give.

We should like to get P. B. X. customers to come to us when they need an attendant, either permanent or temporary. We want to impress upon them that we wish to provide them with attendants thoroughly trained in advance in the best methods of operation, in order that their service will be of a high quality at all times, because, in addition to the effect upon the extension user's service, the promptness of answer and attitude on the part of the attendant are an important part in building good relations between the firm for whom the attendant works and customers calling the firm.

Our training equipment consists of two No. 551 cord switchboards and two monitor switchboards and monitoring equipment associated with each.

The department has been established to train inexperienced people and to retrain P. B. X. attendants now employed to make sure that they are acquainted with up-to-date methods of operation.

Our standards for P. B. X. attendants are high; we are careful to accept only those who would make good employes and operators, somewhat along the lines of those who would qualify for central office work.

Attendants who come to us for retraining do so either at the suggestion of our P. B. X. supervisors, who observe that certain individuals require training and offer the two-day course to the management, or at the request of P. B. X. customers themselves.

Recently we sent a letter to all P. B. X. customers, stating that we had reorganized our P. B. X. department, so that we are in a position not only to supply attendants, but also to give retraining. Many requests for retraining have resulted. Recently we trained 25 attendants from one P. B. X. and received commendation both from the management and the attendants themselves.

In our efforts to bring about a satisfactory relationship between the private branch exchange attendants and our operators, we are conducting monthly visitations of attendants. About 15 or 20 P. B. X. attendants from a given exchange are invited to visit that exchange, specifying the date and time. As they reach the central office, a small group is taken in charge by each P. B. X. supervisor.

The work at the local board is explained and demonstrated first; the visitors are then taken to the toll office, where they receive first-hand knowledge in handling toll traffic. Following this all assemble in one of the schoolrooms, where very brief talks are given on local and toll by representatives of the company. Opportunity is given also for any questions by the attendants.

Following this, a luncheon is served in the company cafeteria, where the visitors are seated at small tables presided over by P. B. X. supervisors and other telephone company representatives. During the course of the luncheon, informal discussions are held on the points of interest which have come up earlier in the evening. Often valuable suggestions or ideas are offered by the attendants at this time. The serving of the luncheon is also by way of a little diversion and helps in creating the friendly atmosphere and cordial relations which are desirable.

Let me emphasize, in closing, that in visiting the P. B. X.'s or in informal meetings of P. B. X. management or attendants, we try to make it very clear that the advantages to be gained are mutual, that their work is so closely allied with ours and ours with theirs that coordination between the two is absolutely essential. In suggesting certain operating practices, we do not hesitate to show definitely that the adoption of these practices will be of assistance to us as well as to them.

We of the New York Telephone Co. feel that the P. B. X. department is a very important branch of our work—from the standpoint of the telephone company, the P. B. X. customer, and service to the public. The results from the activities recently inaugurated are already evident.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Wisconsin Court Rules Against Hotel's Extra Telephone Charge.

The Hotel Pfister, Milwaukee, Wis., must not charge more than five cents for room telephone calls, Circuit Judge Walter Schinz ruled on April 25. If the hotel continues to charge 10 cents for room calls, the Wisconsin Telephone Co. is empowered to cut off its service to the hotel, the judge held.

Orders by the Wisconsin Railroad Commission in 1911 made it illegal for the telephone company to give service involving a charge to the public beyond the five-cent rate established by the commission.

The court affirmed this ruling and quoted from the hotel's contract with the telephone company as follows: "The equipment comprising the hotel system or any part of it, shall not be utilized for any service or purpose which may constitute a violation of any municipal, state or federal regulation."

A temporary injunction granted February 16 by Circuit Judge Daniel W. Sullivan, restraining the telephone company from cutting off its service to the hotel, was vacated. The telephone company had threatened to stop its service unless the rate was lowered.

General Irving Fish, who argued the case for the hotel, said the extra charge, which is common in Chicago hotels, was for "secretarial" service. Attorney Edwin S. Mack represented the telephone company.

Property Transfer in Indiana Eliminates Duplication.

The Indiana Bell Telephone Co. was recently authorized by the Interstate Commerce Commission to acquire the properties of the Rosedale Mutual Telephone Co., owning exchanges at Rockville and Rosedale, which are operated in active competition with the exchanges of the Bell company, and serve 152 and 300 subscriber stations, respectively. At Rockville 69 stations are duplicated. The exchanges of the two companies are not connected, and sole subscribers of the Rosedale company are without access to the Bell toll lines.

By a contract made December 27, 1929, the Bell company agreed to purchase the Rockville plant of the Rosedale company for $9,500. An appraisal made by the Bell company's inventory and costs engineer found the reproduction cost new of the properties to be $27,224.51, and less depreciation $17,547.79.

The contract further provides that the Bell company will sell to the Rosedale company the outside telephone plant connected with its Rosedale company for $1,500. The estimated reproduction cost new of these properties is $6,006, and less depreciation $3,521.75. No authority was sought in the application for the transfer of the properties of the Bell company to the Rosedale company.

The plan contemplates the elimination of duplicated facilities at Rockville and Rosedale, the commission found. The telephone users at those points will receive better and in some cases cheaper service. They will be served by a single company and will have access to the Bell long-distance lines. The applicant and the

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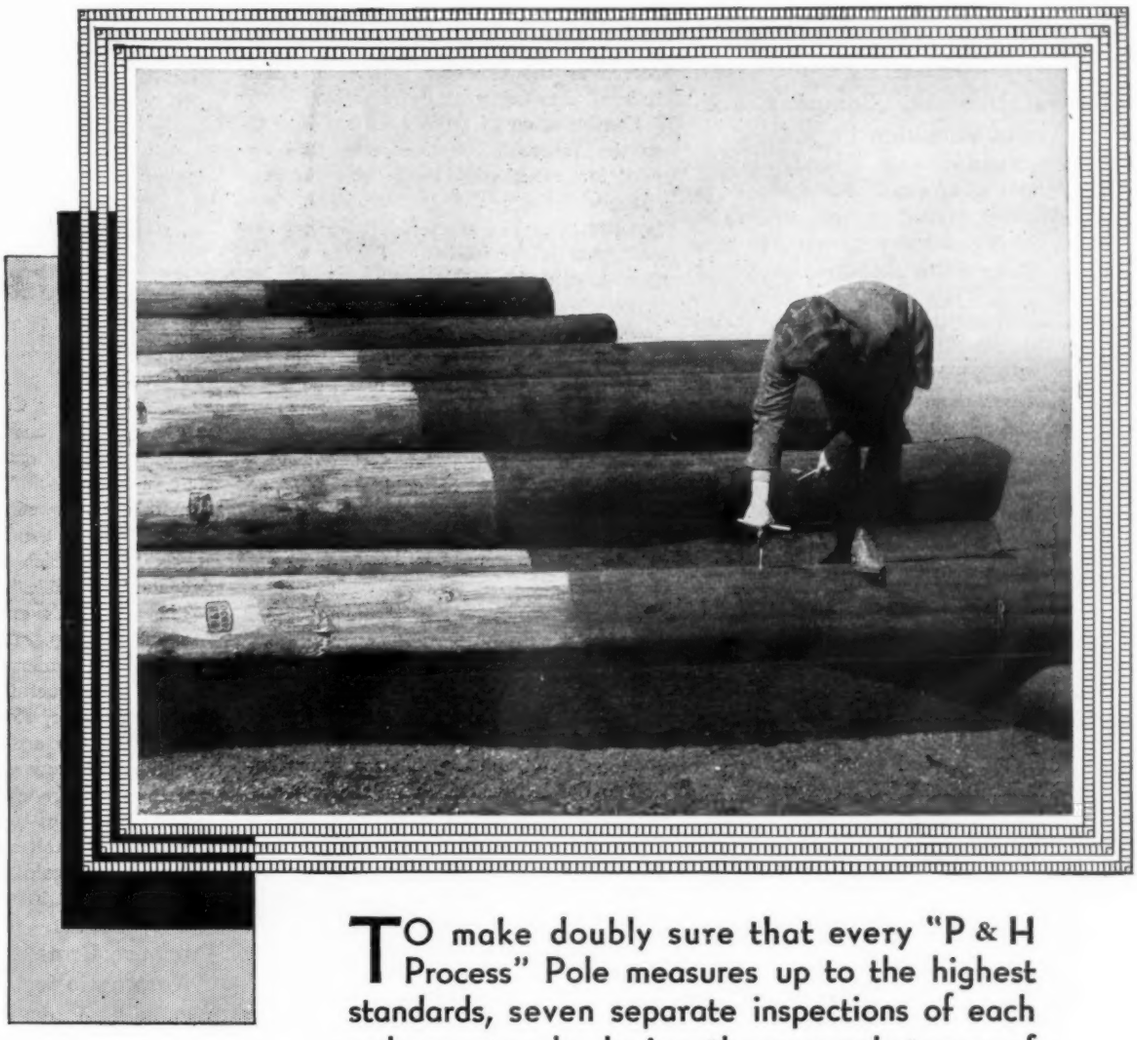

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Rosedale company will continue to give free service between the Rockville and Rosedale exchanges, as well as between those exchanges and other exchanges in Parke county to which such free service has heretofore been rendered.

The commission found that the acquisition by the Indiana Bell of the Rockville exchange of the Rosedale company will be of advantage to the persons to whom service is to be rendered and in the public interest.

Central Nebraska Company Submits Valuation Figures.

The application of the Central Nebraska Telephone Co., of Grant, for authority to issue $120,000 of stock at par, in addition to the $60,000 outstanding, was heard by the Nebraska State Railway Commission on April 10. The company submitted an appraisal from the Lloyd-Thomas company showing that the properties are worth $180,000, which represents what was paid for them by a group of Denver capitalists, who purchased eight exchanges in the southwestern part of the state a year ago.

Engineer Van Taylor of the commission reported that he had examined the properties and submitted figures showing a reproduction new cost of $177,978, and a present, or depreciated value of $134,034. He reported the reproduction new values for the exchanges as follows: Brady, $35,554; Grant, $10,904; Imperial, $14,345; Maxwell, $17,171; Palisade, $13,864; Sutherland, $24,041; Venango, $38,511, and Wellfleet, $23,586.

The commission considered the appraisals and took the matter under advisement. The company will later ask the commission for rate increases, as a number of the exchanges are not making an adequate return on the actual investment.

Small Company Authorized to Increase Rates; No Hearing.

The Nebraska State Railway Commission has issued authority to the Ames Creek Telephone Co., of Obert, to increase its rates. No public hearing was held, the commission deeming this unnecessary. The commission found that over the last seven-year period the company has had an average annual revenue of $2,584.40, with expenses of $2,309.60, leaving $274.80 for interest and dividends.

The company asked for an increase of 10 cents a month on farm service. There are 104 farm patrons, so the added revenue would give the company a total of $399.60 profit. The company said it desired to make a dividend payment yearly in the future, commensurate with the holdings of the owners.

The commission is of the opinion that if all items of cost are considered, the rates applied for would yield less than a fair return upon the fair value of the property after a reasonable allowance is made for operating expenses. The evidence of good public relationship is manifested by the absence of complaints of any kind.

To further substantiate its claims, the company solicited a majority of the subscribers affected, and secured the consent of two-thirds to the increase. The officers said that more could have been obtained if necessity demanded, but because of the time required and the expense involved the record as shown would indicate the attitude of a sufficient majority.

Consideration of these questions and also the favorable comparison of the applied-for rates with those of other exchanges indicate their reasonableness and justification. The commission feels, however, that in the interest of public service the company should consider as its first prerequisite the continuation of operation and the ability to serve. Thus it behooves the company to use caution in narrowing its surplus to the minimum in its payment of dividends.

Coupled with the order permitting the increase in rates, the commission directed that dividends may be paid out of earnings not to exceed 8 per cent on outstanding capital stock until further order of the commission. The effective date of the order is June 1.

Company Plans Conversion to Metallic of Grounded Exchanges.

The Nuckolls County Independent Telephone Co., now owned by the Lincoln Telephone & Telegraph Co., has made application to the Nebraska State Railway Commission for authority to convert its exchanges at Nora, Oak and Ruskin from grounded magneto to metallic service.

When the work has been completed, the company desires authority to raise the rates to the same level at each exchange, $3.00 a month for business service, $2.00 a month for individual residence and $1.75 a month two-party residence. The present service is out of date and unsatisfactory because of induction from the many power lines that gridiron the southern part of the state.

At Ruskin 70 out of 71 patrons signed for the new service at the proposed rates; at Oak 26 of 35 signed up and at Nora 36 of 39. The petitions follow a form that the railway commission has approved and urges the use of, in advance of rate applications so that patrons may be both advised and informed when a rate increase is involved.

Small Massachusetts Exchange Acquired by Bell Company.

The Interstate Commerce Commission recently authorized the acquisition by the New England Telephone & Telegraph Co. of the telephone properties of Edward M. Partridge, doing business as the Millers Falls Telephone Co. at Millers Falls, Mass., which serves 245 subscriber stations.

By an option agreement made July 18, 1929, Mr. Partridge agreed to sell all his physical telephone properties to the New England company and to convey a clear and unencumbered title thereto for $12,000. An appraisal made by one of the New England company's engineers found the reproduction cost new of the properties to be $13,158, and less depreciation $9,060. In 1928 operating revenues and operating expenses of Mr. Partridge's exchange were $4,932.85 and $2,720.20, respectively.

None of the acquired properties will be retired from service immediately, but the New England company plans eventually to rebuild the entire plant and to operate it in connection with one of its neighboring exchanges.

Commission Ratifies Company Rule Adopted by Mistake.

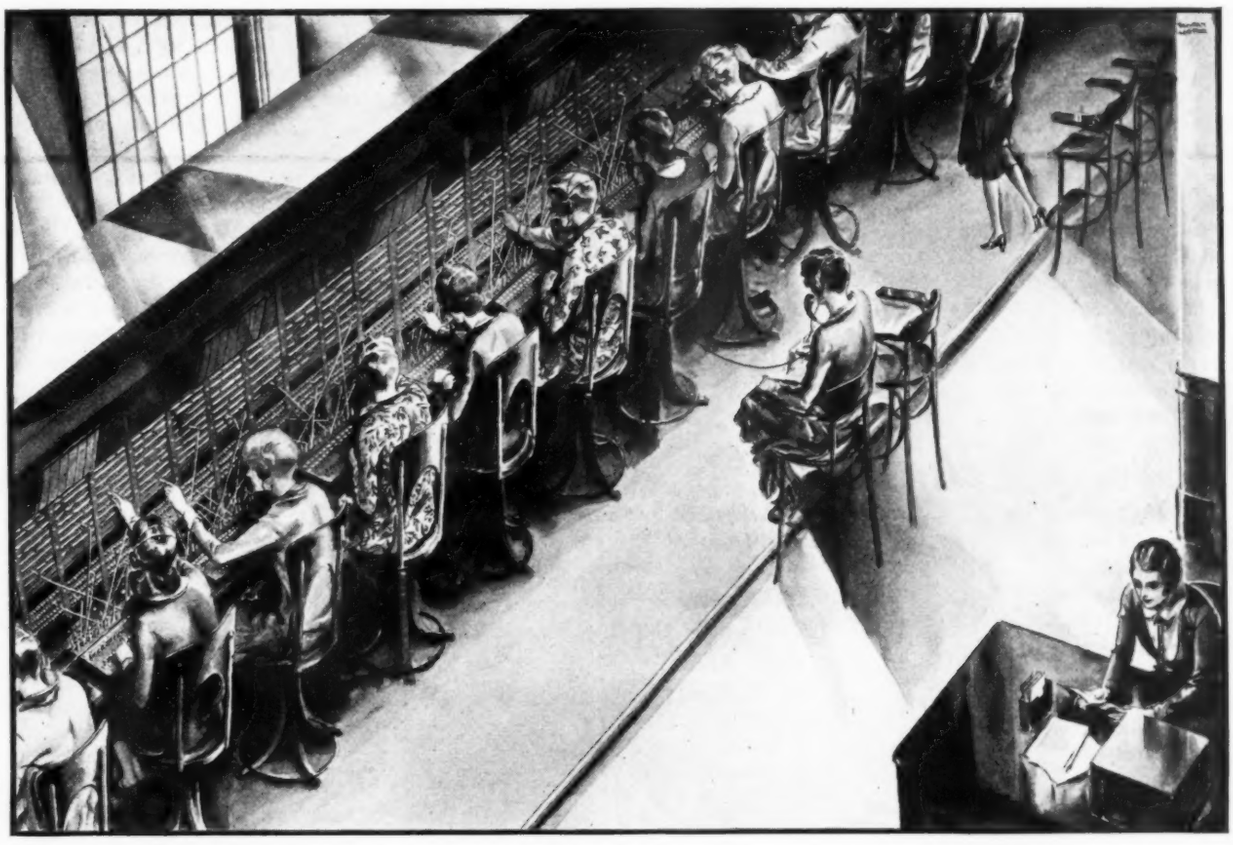
The Hazard Telephone Co., of Hazard, has been granted authority by the Nebraska State Railway Commission to continue in effect a gross and net rate rule adopted, by mistake, without authority from the state, as follows: "Discount of 25 cents a month is allowed where rental is paid by the 15th of the current month, in advance, after which time gross rates are due and collectible."

The company's exchange is open from 7 a. m. to 10 p. m., and it was granted permission, in order to minimize the number of times operators are roused from sleep, to charge 15 cents for each call, save where they are emergency in character. The company was informed that this rate must not be charged where the call is for an out-of-town station, as these are part of the toll service every exchange is required to maintain at such times that it is demanded.

Patrons Protest Substitution of Automatic for Manual Service.

Patrons of the Seward, Neb., exchange of the Lincoln Telephone & Telegraph Co. have hired attorneys to protest against the substitution of automatic for manual service because it would cost more. They have asked the Nebraska State Railway Commission to rule that each particular exchange should not be considered as a separate unit associated and apart from the system as a whole. They also filed objections to the fact that the Seward exchange is credited with only 25 per cent of the toll business originating and terminating there, arguing that all that originates there should be credited to the revenues of the exchange.

Other requests are that the commission make a thorough study of the rate structure of the entire company with special reference to the Seward exchange; that there should be a denial of any increase, since it appears that the company as a whole is earning a fair return on its in-



EACH CALL MUST BE HANDLED SEPARATELY, EACH FITTED TO THE NEEDS OF THE INDIVIDUAL WHO MAKES IT

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These Associated Companies have the benefit of study and analysis by the staff of the American Telephone and Telegraph Company, leading to progressive improvements in service. Each of the Bell Companies takes advantage of the research findings of the Bell Laboratories, commanding scientific talent unsurpassed in any industry.

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vestment; that the commission order a readjustment of the toll revenues and expenses because the exchange is burdened with unusual switching charges and toll handling for eight other exchanges for which it receives no compensation.

The commission has taken the application under advisement, along with the application filed by the Monroe Independent Telephone Co. for authority to substitute the automatic for the manual system at its Newman Grove exchange, the home town of Railway Commissioner Randall. At the hearing held little objection was made, the company having purchased a building occupied for a year by a state bank that has gone out of business and agreeing to put in one of the most modern plants.

Briefs Filed in New York Rate Increase Case.

New York City and the New York Telephone Co. filed with the New York Public Service Commission on April 26 their briefs in the rate increase case on which the commission was to give its decision by May 1.

Through Corporation Counsel Arthur J. W. Hilly, the city of New York attacks the property valuations on which the company is seeking at least a 7 per cent return. Mr. Hilly asks the commission to pare off at one stroke $66,000,000 which, at 7 per cent, would reduce the company's annual rate earnings by $4,600,000.

The telephone company, through Charles T. Russell and Edward L. Blackman, counsel, maintains that the only two broad and ultimate points to be considered are the amount of net revenues which would yield the company a fair annual return on the value of its property and the rates required to produce that net revenue.

The brief of the company points out that under the commission law, rates established by the commission should not only avoid confiscation but should be just and reasonable.

Farmers Non-Profit Organization Authorized Increased Rate.

The Nebraska State Railway Commission has given authority to the Hamilton County Farmers Telephone Association, Aurora, to increase rates on all classes of service in all exchanges 10 cents a month. The company is unique in that it is largely owned by farmers, who seek no dividends on their investment, and who supply telephone service at cost to the business men and residents of towns in the county. There are no competing exchanges within the county.

The purpose of the increase is to secure additional revenue to enable the company to build up a cash emergency fund. Its officers also feel the need of extensive repairs to a major portion of the plant and the cash available is insufficient. No person appeared to object at the hearing held in the county seat.

Back in 1925 the company asked for authority to cut rates 10 cents a month. The investigation made by the commission at the time suggested that the decrease should not be allowed, but it did not wish to offer interference with the judgment of the company's officers, and the rate schedule then asked for has been in effect ever since.

The company's financial status at that time was quite substantial, but the decrease in revenues put the company into difficulties rather speedily; and it has not been able, after paying expenses, to lay up a cash reserve in proportion to the needs of a company of its size. Today it is without the protection of a reserve ample for all purposes.

Only a few minor increases in rates have been made since that time, and the commission feels that the increase is amply justified by the company's situation.

New Public Service Commission Bills Acted on by Governor.

On April 22 Governor Franklin T. Roosevelt of New York vetoed the first measure in the series of amendments to the New York Public Service Commission law passed during the recent session of the state legislature. This was the Knight Commission bill providing for a "people's counsel" to be attached to the attorney general's office and charged with the duty of representing the public in proceedings before the public service commission.

In a memorandum explanatory of his action, the governor said that the function the bill sought to transfer to the attorney general's office really was the function the commission itself was created to perform.

"The functions of the people's counsel provided for in this bill," said he, "should be exerted by the commission through its own counsel, assistant counsel, or any other employes whom it wishes to designate therefor.

"I hope that the present public service commission will more and more undertake on its own initiative to institute rate and service proceedings. It should not rely on the complaints but on its own efforts, to establish proper protection for the people.

"The idea of a people's counsel as intended by this bill is antagonistic to such an attitude on the part of the commission."

The governor on April 24 approved two other bills of the series after he had denounced them in a memorandum as "feeble" and "entirely inadequate."

One of the bills provides some new regulatory power for the public service commission over holding companies as well as over transactions between operating utilities and affiliated service and supply companies. The other would give the commission power to compel disclosure of the identities of persons holding a substantial interest in the voting stock of corporations under its jurisdiction.

Denouncing as "unjust and impracticable" the present method, sanctioned by recent decisions of the United States Supreme Court, of appraising public utility property for rate-making purposes, Governor Roosevelt on April 26 vetoed a bill to provide for a valuation of state-wide utility properties.

"I am disapproving this bill," he stated in his veto memorandum, "because it tends to perpetuate the present valuation muddle, which all agree renders effective regulation impossible. I am disapproving it because it is distinctly contrary to the proper principles of valuation, and, actually and literally carried out, it would in all probability produce higher rates than those which now burden consumers of public utility services."

He called attention to the fact that the version finally sent to him for approval was the fourth reprint of the bill since its introduction.

Referring to a bill amending the public service law so as to provide for "the stabilization of public utility rates" through ten-year contracts between municipalities and utility concerns as "ridiculous" and "a useless piece of paper," demonstrating the "complete bankruptcy" of the utility regulation reform program proposed by a majority of the Knight commission, Governor Roosevelt also vetoed this measure.

"This bill more than any other shows the complete bankruptcy of the entire program of the majority of the (Knight) revision commission for meeting the existing crisis in public utility regulation," Governor Roosevelt said.

"In its original form it left it completely to the willingness of the utilities to enter into the contract or not, as they chose. In its final form it makes no pretense of lifting the process of rate-making out of the hopeless mess of controversy and litigation into which the 'reproduction cost' and 'fair value' theories have plunged it. It offers the consumer of electric current and the user of telephones no protection which he does not already enjoy under the present law."

New Jersey Bell Takes Over Properties at Milford.

The New Jersey Bell Telephone Co. was recently authorized by the Interstate Commerce Commission to take over the properties of the Delaware Valley Telephone Co., which operates an exchange at Milford, N. J., serving approximately 190 subscriber stations with 12.9 pole miles of toll lines.

The Delaware company is unwilling to make the investment required for necessary additions and improvements and prefers to dispose of its properties, the commission found. The Bell company, upon acquiring the properties, will expend such

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Long Life—Dependability

Burgess, the famous black and white striped batteries, are always on the job—in the navy, the signal corps and with the Byrd Antarctic Expedition.

Business Telephone Batteries too, are known the world over for their dependability—ready to give instant and intermittent service over a long period of time.

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General Offices: CHICAGO
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When writing to Burgess Battery Co., please mention TELEPHONY.

sums as may be necessary to provide the community with satisfactory commercial service.

On August 26, 1929, the Bell company contracted to purchase all the physical properties of the Delaware company, free from all liens and encumbrances, for $27,500. An appraisal made by the inventory and costs engineer of the Bell company found the reproduction cost new of the properties to be $49,749, and less depreciation $37,666. In 1928 revenues and expenses of the Delaware company were $10,336.45 and $9,501.13, respectively.

Valuation Placed on New Bremen (Ohio) Company.

Commission engineers recently placed a valuation of $68,991.74 upon the property of the New Bremen Telephone Co., used and useful in maintaining telephone service.

This value, which is $51,596.49 less than that claimed by the telephone company in its rate request, will be used as the basis for a final decision in this matter unless formally protested within a month from the date of the order.

Eaton Company Protests Ohio Commission's Valuation.

The Eaton Telephone Co., of Eaton, Ohio, has filed a protest with the Ohio Public Utilities Commission against the tentative valuation placed on the property of the company for rate-making purposes. The commission placed a valuation of $183,399, while the company claims the valuation should be $228,000.

The protest avers that the allowances for interest, taxes and other tangible elements was arbitrary and insufficient. The company claimed that the rate of depreciation charged is entirely too high.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

April 12: Sale of the property of the Egg Harbor City Telephone Co. to the New Jersey Bell Telephone Co. for $70,000 approved.

CALIFORNIA.

April 19: Associated Telephone Co., Ltd., operating telephone systems in the following towns and their contiguous territories: Azusa, Baldwin Park, Glendora, Hermosa Beach, Long Beach, Manhattan Beach, Ocean Park, Puente, Redondo Beach, Santa Monica, Signal Hill, Venice, West Los Angeles, in Los Angeles county; Huntington Beach, Laguna Beach, Los Alamitos, Seal Beach and Westminster in Orange county and San Bernardino, authorized to issue and sell at not less than 92 per cent of face value, plus accrued interest, $6,000,000 of first mortgage five per cent gold bonds Series "A," due March 1, 1965, and use proceeds to reimburse its treasury on account of construction expenditures and for the purpose of paying outstanding bonds and indebtedness. The company recently acquired and consolidated a number of Independent telephone companies serving the foregoing cities and towns. It is the intention of the Associated company to redeem as soon as possible all of the outstanding bonds of its predecessor companies with funds derived from the sale of the present issue.

ILLINOIS.

April 30: Hearing at Chicago before Commissioner Collins in the matter of the proposed advance in rates for service of the Illinois Allied Telephone Co. in Princeton, Ladd, Ohio, Tiskilwa, LaMoille, Manlius, Dover, Sheffield, Wyanet, Walnut and Spring Valley.

April 30: Hearing in the matter of the joint application for leave and authority to the Bureau County Independent Co. to sell and the Illinois Allied Telephone Co. to buy all the corporate rights, franchises, assets and properties of the former company and for a certificate of convenience and necessity to the Illinois Allied company to operate properties in Bureau county.

April 30: Hearing before Chairman Hadley in the matter of the application for an order authorizing the issue of its first lien 5½ per cent bonds in the principal sum of $80,000 of the North West Telephone Co., Freeport.

INDIANA.

April 11: Indiana Bell Telephone Co. ordered to reestablish service at Cowan and four other small Delaware county towns through its Muncie exchange. Other towns affected are Mt. Pleasant, Oakville, Albany and Eaton.

April 29: Rush County Telephone Co. appeared before commission to answer an investigation of the company's activities. It was alleged that the company has constructed rural electric lines without having obtained authority from the commission and that these lines interfere with the successful operation of other public utilities. Inquiry conducted into the adequacy of service of the company and the possibility that rates should be adjusted.

MINNESOTA.

May 6: Hearing on complaint filed by Western Buse Telephone Co., Swan Lake Telephone Co., Line 11, Fergus Falls Rural Telephone Co., Excelsior Rural Telephone Co., French Rural Telephone Co., Hoot Lake Telephone Co., Horseshoe Lake Telephone Co. and Red River Telephone Co., alleging the payment of $6 switching charge per annum to the Northwestern Bell Telephone Co. by the companies excessive, unreasonable and discrimnatory and asking hearing whereby the matter may be gone into and a just, reasonable charge be fixed by the commission.

MISSOURI.

April 2: Application filed by O. B. McCoy to sell and North Central Telephone Co. to buy the telephone plant and system located in and around the town of Chula, Livingston county, for the price of $14,500.

April 2: Application filed by J. E. Thomas to sell and North Central Telephone Co. to buy the telephone system located at Laredo, Grundy county, for the sum of $19,000.

May 29: Hearing at Jefferson City on applications of Indiana Central Telephone Co. to acquire and hold more than 10 per cent of the capital stock of the Central Missouri Telephone Co.; and joint application of petitioners, Central Missouri Telephone Co. to buy assets of Central Missouri Home Telephone Co., Lafayette Telephone Co., Sweet Springs Telephone Co., Missouri River Telephone Co., Holt Telephone Co., Central Missouri Telephone Co. to issue its capital stock; Central Missouri Telephone Co. for certificate of convenience and necessity and Commonwealth Telephone Co. to own and hold stock of Central Missouri Telephone Co.

NEBRASKA.

April 15: Application filed by the Holbrook Central Telephone Association, of Holbrook, for authority to publish a rate of 75 cents for business and 50 cents for residence extension telephones and 25 cents a month for extension bells.

April 15: Application filed by the Cambridge Telephone Co. for validation of an established rate of $2.35 a month for two-party business service for which no authority appears to have been granted in the past.

April 17: Application filed by the Central Nebraska Telephone Co., of Grant, for authority to establish rural metallic telephone service and to charge $2.25 a month net therefor.

April 17: In the matter of the application of the Ames Creek Telephone Co., of Obert, for authority to increase farm rates 10 cents a month; found reasonable and necessary and authority issued as asked; ordered also that dividends may be paid out of earnings not to exceed 6 per cent on an outstanding stock of $4,000, until further orders of the commission.

April 21: Application of the Hazard Telephone Co. for validation of changed gross and net rule, and for charge covering out-of-town calls, found to be reasonable and granted as requested.

OKLAHOMA.

April 28: Hearing on application of Western Telephone Corp. for an increase in rates at Kingfisher.

WISCONSIN.

April 18: Montpelier Telephone Co. authorized to discontinue its present schedule of rates and substitute therefore the proposed rate of $18.

April 18: Bad Axe Telephone Co. authorized to place in effect a charge of 15 cents per message whenever two of its switches are used, applying to calls coming from or going to the La Crosse Interurban Telephone Co. and the Viroqua Telephone Co. The charge applies to non-subscribers principally.

April 30: Hearing at Madison in the matter of the investigation on motion of the commission of the proposed schedule of rates submitted by Commonwealth Telephone Co., Madison, Wis.

May 6: Hearing at La Crosse on the application of the La Crosse Telephone Co. of La Crosse for authority to increase and adjust rates, rules and regulations for telephone service in its La Crosse and Onalaska exchange areas.

May 6: Hearing at Wauzeka on the application of Crawford County Telephone Co. for authority to establish rates.

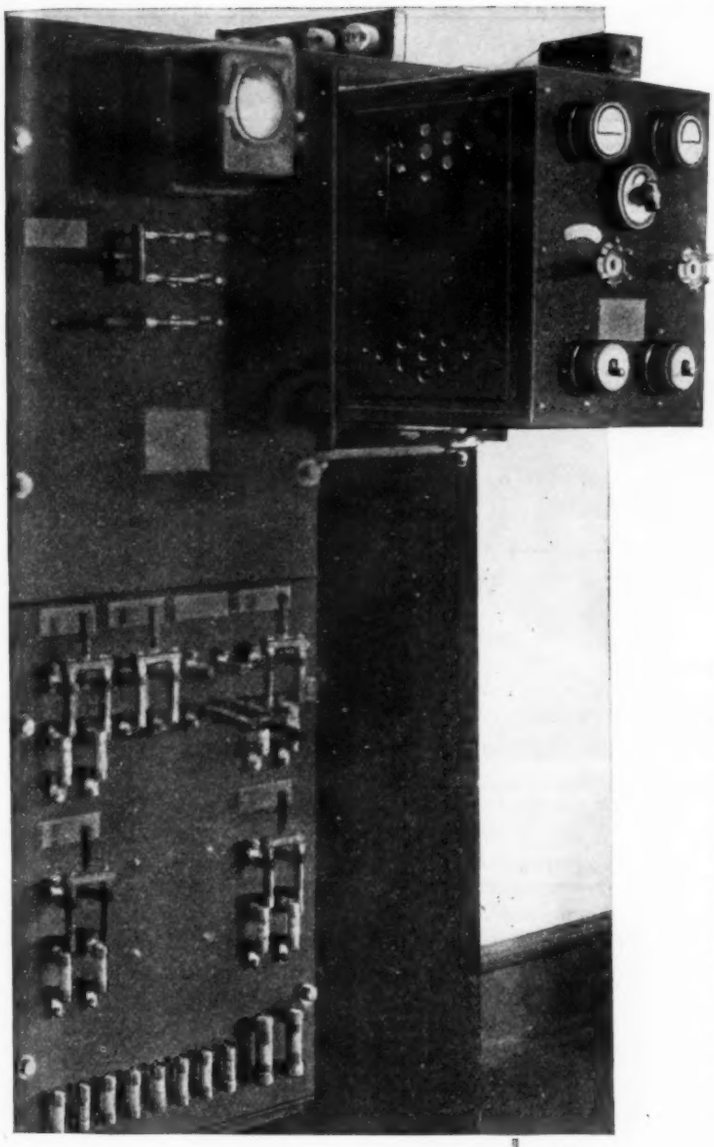
May 6: Hearing at Wauzeka on the joint application of Utica Farmers Telephone Co. and Crawford County Telephone Co. to abandon joint exchange at Readstown, switching subscribers at Gays Mills and also to abandon McFarland Switch.

May 6: Hearing at Alma on the application of Tenney Telephone Co. to establish toll rates for calls between Nelson and Cochrane, Arcadia, Modena, Gilmanton and Mondivi.

May 6: Hearing at Alma on the application of Modena Cooperative Telephone Co. of Modena for authority to increase its rates for telephone service.

May 7: Hearing at Prairie du Chien on the applications of Commonwealth Telephone Co. of Madison for authority to discontinue the exchanges at Bridgeport and Lynxville.

May 9: Hearing at Madison on the application of the Wisconsin Telephone Co. for authority to increase its rates at its Marinette exchange.



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Wherever a power board is equipped with a Tungar—world's best known battery charger—*there's* peace of mind for everybody . . . customer, manager, maintenance men.

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With the Manufacturers and Jobbers

"Chocolate Town" Community House to Have Board.

An American Electric monotype switchboard has been chosen for the new community building now being erected at Hershey, Pa., home of the famous Hershey chocolate products. This is to be a cordless P.B.X. embodying all of the latest operating features, including automatic ringing, automatic listening, instantaneous ringing cut-off, reverted ringing tone, etc.

The line circuits are to be of the associated line lamp, two jacks per station, type. The power equipment selector is the automatic full-float load type. Dual sets of ringing current interrupters and ringing machines are also to be provided. All stations, both regular and extensions, will be provided with monophones.

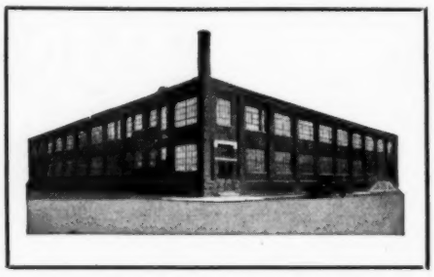
Brach Mfg. Corp. in New Plant in Newark, N. J.

L. S. Brach Mfg. Corp., conspicuous for many years in the manufacture of lightning protective apparatus for radio, telephone and telegraph and other products, has removed from its old location, 127-129 Sussex avenue, Newark, N. J., to its new factory at 55-63 Dickerson street and 84-92 Duryea street, Newark, N. J.

The Brach corporation was established 24 years ago for the manufacture of electrical railway signal devices. For a long while this was the main business of the concern, but last year it was disposed of in order that the company might devote itself wholly to the manufacture of radio protective devices and other specialties which the Brach engineers have invented or developed.

The company is making, in addition to the lightning protective apparatus, the new testing instrument for electricians, automobilists and householders, now very well known as Test-O-Lite. Electrically operated clocks are among the newest specialties which will demand the energies of the Brach manufacturing and sales forces.

The company in the new plant plans an extensive expansion program, adding many



The New Plant of the Brach Mfg. Corp. in Newark, N. J.

new and useful devices to its present already extensive line.

Gloversville, N. Y., Exchange Sets Record Telephone Traffic Load.

By O. K. Durfee,
Glen Telephone Co.

Gloversville, N. Y., is a city of 22,000 and is located in the eastern central section of the state. The telephone requirements of the town are served by one exchange. The switchboard is a Stromberg-Carlson super-service of 18 positions, 13 of which are used for local service. Two positions are used as B positions, one as a hospital position, and two are unequipped.

The traffic load on December 23, 1929, broke all previous records. From midnight of December 22 to midnight of December 23, 52,511 calls were handled. This figure does not include the incoming inter-office and long distance, which amounted to 3,263. The average 24-hour load is around 32,000.

The cause of the heavy traffic load was a real old-fashioned snowstorm, which began at noon, and continued all afternoon and evening, until there was about 14 inches of snow. With such conditions, we looked forward to a record load on December 24—and it came. From midnight of December 23 to midnight of December 24, the meters registered 57,369 calls. Add to this figure, the 3,322 incoming inter-office and long distance calls, we had a total of 60,691—and that with a station count of 6,250 and 2,850 lines.

The greatest number of calls handled in one hour was from 9 a. m. to 10 a. m. The meters showed that 5,100 calls went through, an average of 393 for each operator's position. The heaviest current discharge rate came during that same hour when a peak load of 75 amperes was recorded. During the 11-hour period from 8 a. m. to 7 p. m. 46,168 calls went through, or an hourly average of 4,197. The average number of operators on duty was 11, and they handled an average of 381.5 calls per hour per operator.

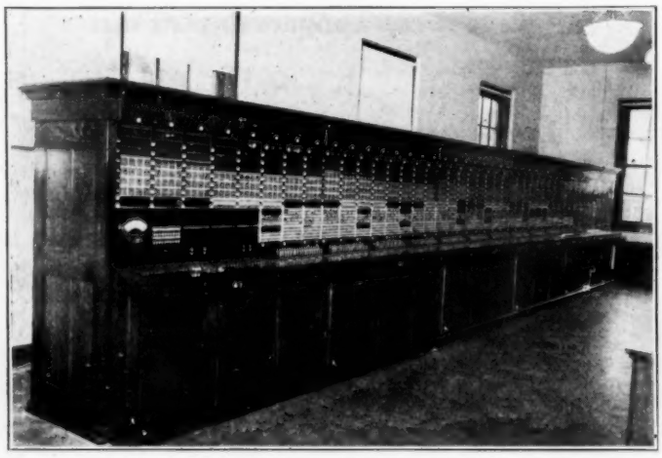
The greatest number of calls handled on one position in one hour was from 11 a. m. to 12 a. m. and totaled 576. Thus the operator handled the calls at the rate of approximately 10 per minute.

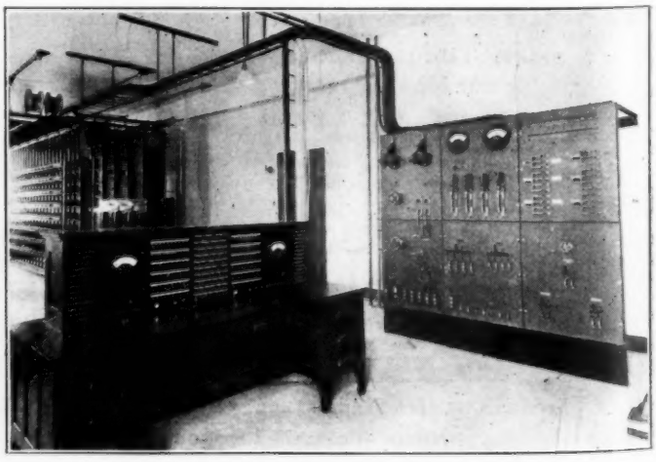
The peak load on the batteries came at 9:30 a. m. and was 75 amperes. The average drain for 11 hours was 49.43 amperes.

During the same period, each of the 234 cord circuits on the switchboard was used an average of 197.3 times. There are 19 cord circuit relays (including master relays) operated for each call, or a total of 877,000 relay operations. Approximately 2,400,000 relay contacts were made. Not a single case of cord circuit trouble developed, nor did any machine or piece of apparatus require adjustment or attention.

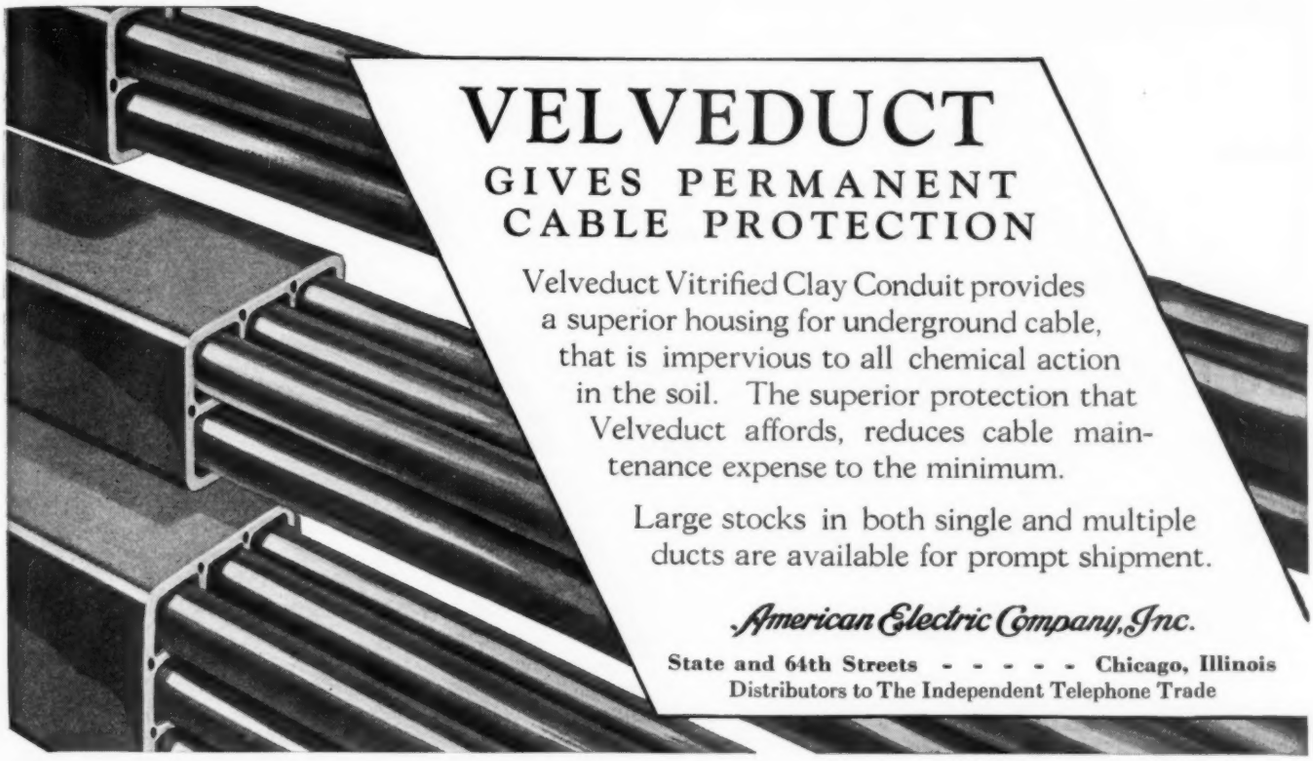
Foo Chow, China, Now Uses the Strowger Dial.

The recent conversion of the telephone system of Foo Chow, China, to Strowger





Stromberg-Carlson Super-Service Switchboard at Gloversville,, N. Y.—Wire Chief's Desk and Power Board.



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Velveduct Vitrified Clay Conduit provides a superior housing for underground cable, that is impervious to all chemical action in the soil. The superior protection that Velveduct affords, reduces cable maintenance expense to the minimum.

Large stocks in both single and multiple ducts are available for prompt shipment.

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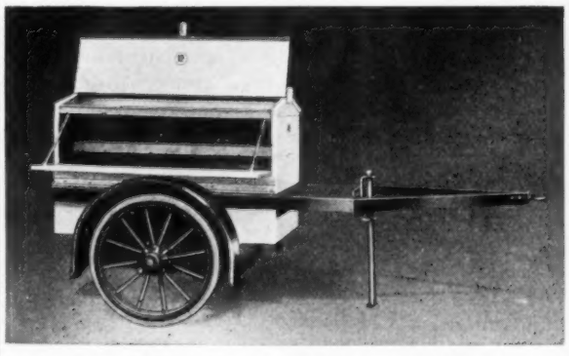
CLAY PRODUCTS COMPANY, Inc., OF INDIANA, BRAZIL, INDIANA



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Littleford All-Steel Tool Boxes are made in three styles—Heavy Duty, Stationary and Utility.

The Utility (Splicer) Tool Box has shelves and compartments to accommodate jack hammers, lead furnaces, picks, shovels and small equipment.

The sturdy chassis cushioned on helical springs and fitted with heavy duty roller-bearing wheels is assurance of trailing quality and long life.

Write for Bulletin No. E-11. It gives complete information.

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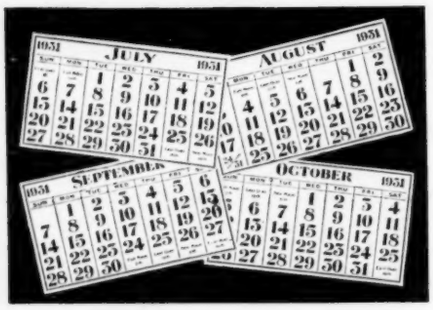

No Battery Cost for Months

A complete installation of Storm King Batteries will give you an average increase of from 20 to 33 percent in effective Battery life.

The gain is certain because every Storm King Battery contains 20% more active material than any other Battery of the same size. Improved processes of manufacture and exclusive patented features insure increased life, quick recuperation, and uniformity.

The net gain to your lines is from two to four months longer service without Battery replacements and maintenance expense. Send trial order to prove it.

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dial operation gives this ancient city communication facilities of the most modern type. The Fukien Telephone Co., of which C. L. Lui is president, is to be congratulated upon its progressiveness in providing the city with modern service.

Foo Chow is a city of over one million population, but can at present be reached only by boat. It is renowned for its exports of tea, lacquer and fruits. To illustrate how untouched this city is by many of the modern things, it is stated that there are only about 60 automobiles registered there. Situated at the foot of towering mountains, the scenery surrounding the city is unusually beautiful, and the locality is rapidly becoming a mecca for tourists eager to view this ancient and historic community.

An interesting part of the installation work was the placing of a new 300-pair cable over the River Min, which separates the island on which the settlement is located from the mainland. The cable was taken over an old stone bridge, called the "Bridge of the Ten Thousand Ages," the actual age of which is reputed to be over a thousand years. It is only 16 feet in width, but carries a heavy and constant traffic of both pedestrians and vehicles.

Two offices were installed. The largest, Main office, consists of 1,000 lines of Strowger dial equipment; while the other, Nantai (City) office, has 500 lines of Strowger equipment. Eleven hundred telephone instruments, mostly of the monophone type, were also installed in the modernization of the system. New buildings were erected for both exchanges, being constructed of the best materials and in strictly modern style.

The president of the Fukien Telephone Co., besides being an up-to-date and aggressive protagonist of the modernization of the city's communication facilities, is active in other business enterprises in the locality.

He is owner of the "Hot Springs Club," which operates a beautiful and extensive clubhouse that is supplied with natural hot medicinal waters from underground springs, which are utilized for baths. Separate white-tiled rooms for the baths are provided for Japanese, Chinese and foreign patrons. The clubhouse has a completely equipped modern kitchen, and its excellent cuisine has attracted a large foreign, as well as native, patronage from those who desire rest and relaxation amid pleasant surroundings.

Foo Chow's conversion to Strowger dial operation adds another name to the rapidly growing list of Chinese cities which have adopted this modern means of communication. Plans have been prepared for the early installation of this system in Shanghai and Hankow, while those cities already using the Strowger dial include Harbin, Dairen, Fushun and Tientsin.

Plants are now in the process of installation at Mukden, Nanking and the Colony of Hongkong. The satisfaction with which this equipment meets Chinese operating conditions is attracting favorable attention from officials throughout China, and has led to consideration of it for early installation by a large number of important municipalities not as yet under automatic operation.

Leich Electric Co. Receives Orders for Two 300-Line Boards.

The Leich Electric Co., Genoa, Ill., recently closed a contract for a 300-line capacity, two-position magneto switchboard, with 200 drops installed and 25 double supervisory cord circuits for Kanawha, Iowa. It also has been given the contract for a 300-line capacity, two-position magneto switchboard with 250 drops installed and 30 double supervisory cord circuits, for Forreston, Ill.

"Wyckoff" Conduit for Protecting Underground Telephone Cable.

The Wyckoff Pipe & Creosoting Co., Inc., has been awarded the contract for supplying the Petroleum Telephone Co. with conduit for underground cable to be placed from Oil City, Pa., to Franklin, an improvement which will more than double the line facilities between those two cities. The installation is being made jointly with the Bell Telephone Co. of Pa.

The cable will be placed in "Wyckoff" creosoted wood conduit, which the Wyckoff Pipe & Creosoting Co. has been manufacturing since 1884, being the original patentee of creosoted wood conduit for underground wires. During that time the company has manufactured very nearly 75,000,000 lineal feet of conduit. In many cases, it is stated, the wood conduit has been taken up on account of other improvements and relaid in a new location.

The conduit is used in New York City for carrying the main trunk lines of the New York Telephone Co. and many large installations have been made to carry electric light cable, fire alarm cables, as well as telephone and telegraph.

This conduit, when laid, is permanent, it is stated, and requires no cement or skilled labor for laying, and at any point where it is used the trench can be opened in the morning and back-filled in the afternoon and thus avoid serious delays to traffic.

Western Electric Co. Orders Low-Bed Trucks for Cable Reels.

The Western Electric Co. has ordered three FWD six-wheel low-bed trucks for carrying cable reels at its Point Breeze plant, Baltimore, Md.

The trucks will be used to transfer cable from a loading platform to an unloading platform, 1,500 feet away. The reels to be handled by these trucks vary from 18 to 50 inches in width and from 42 to 80 inches in diameter. The weight of the cable reels vary from the small one weigh-

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For Central Office and PBX Ringing

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ONE CONTACT!

IDEAL WAVE FORM

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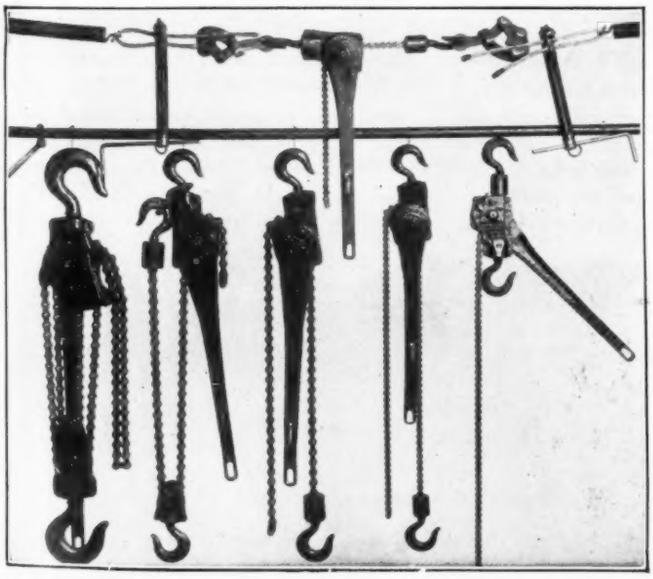

Model Z 6 Ton Weight 65 lbs.	Model F. S. 3 Ton Weight 36 lbs.	Model F. 1½ Ton Weight 25 lbs.	Model A ¾ Ton Weight 13 lbs.	Model A Reversed

Hoists can be used either end up or in any position.
A truly one-man tool, light, fast, powerful, simple, durable.
Models A and F particularly adapted to utility work, pulling guys, messenger wires, underground cables, poles, lifting transformers, loading heavy supplies, booming poles. Also have a pole jack for pulling and straightening poles. Pole clamp for changing top cross arms on corners and in pole lines. Will send on 30 days' trial.

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Time Now to Change to

PREMAX
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"The Modern Way to Mark Property"

WHY use the messy, short-lived paint and stencil method of identifying poles, cable terminals, terminal boxes, etc? There's a better, more modern and efficient way—Premax Aluminum Markers. On the properties of telephone companies the country over, Premax Markers have proved that they are easier and faster to install, much more legible, immune to the weather, never need replacement and that their low first cost is their only cost.

Unlike the old-fashioned stenciled marking, the smooth, gleaming, rust-proof surface of Premax Aluminum Markers is never dimmed by the elements. Every figure stands out clear and sharp against its background, whether the markers are five days or five years old. They're inexpensive to buy and to install—one prominent user reporting an actual saving of 8c per pole when the marking system was substituted for the old stencil paint and brush method.

You can get Premax Aluminum Markers in sizes, types and symbols for every marking need. The entire line is shown in our book, "Property Marking Systems for Public Utilities." This book, written by a leading power company official, is profusely illustrated, and describes marking methods in successful use today.

Mail the coupon for your copy and samples of Premax Markers.

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Please send a copy of "Property Marking Systems for Public Utilities" and samples of PREMAX MARKERS to

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New York City

ing 1,500 pounds to the largest weighing 20,000 pounds. Both the loading and unloading platforms are less than two feet above the roadway. Close control of the truck is essential for accurate loading and unloading of the reels.

The six-wheel FWD trucks will be fitted with special carriages for carrying almost any size reel.

Small Exchanges to Have New Switchboard Equipment.

The Derby Telephone Co., of Derby, Iowa, recently placed an order on the American Electric Co., Inc., for a monotype 150-M switchboard. This unit is to be of the latest type magneto design with visual keyshelf supervision. It will have a capacity of 150 lines and will be wired for 100 with 80 lines equipped.

Other companies which have recently installed boards of this type are: the Mooreland Mutual Telephone Co., Mooreland, Iowa; Milltown Mutual Telephone Co., Milltown, Wis.; and the Circleville Mutual Telephone Co., Circleville, W. Va.

Prices in the Metal Markets.

New York, April 21: Copper—Unsettled; electrolytic spot and future, 14c. Iron—Quiet. No. 2 F. O. B. eastern Pennsylvania, $18.50@20.00; Buffalo, $16.00@16.50; Alabama, $12.50@14.00. Lead—Quiet; spot New York, 5.50c; East St. Louis, 5.40c. Tin—Easy; spot and nearby, $34.75; future, $35.000. Zinc—Quiet; East St. Louis, spot and future, 4.75@4.80c. Antimony—7.62c. Quicksilver—$116.00.

Indiana Representative Appointed by Stromberg-Carlson Company.

Paul D. Myers, Inc., recently was appointed sales representative for the Stromberg-Carlson Telephone Mfg. Co. for the entire state of Indiana, with headquarters at 333 N. Pennsylvania street, Indianapolis. Mr. Myers has been in the employ of the Stromberg-Carlson company for 30 years, for 26 years being Illinois sales representative, and four years manager of the Chicago radio company of that company.

Associated with the organization are C. A. Foster, covering the northern division

Paul D. Myers, for 26 Years Illinois Sales Representative of Stromberg-Carlson, Now Heads Own Company Representing Stromberg-Carlson in Indiana.

of Indiana, and H. B. Woleben, covering the southern portion. Mr. Foster has been with the Stromberg-Carlson company for 15 years and recently had charge of the installation of a radio program system in the 2,500-room New Yorker Hotel.

Mr. Woleben was a former naval electrical instructor and was connected with the Westinghouse Supply Co. of Indiana before joining the Stromberg-Carlson company's new Indiana sales organization.

Modern Exchange Room of the Union Telephone Co., Owosso, Mich. The Operators Are Seated on Do/More Telephone Operator Chairs Which Have Been Installed Recently.

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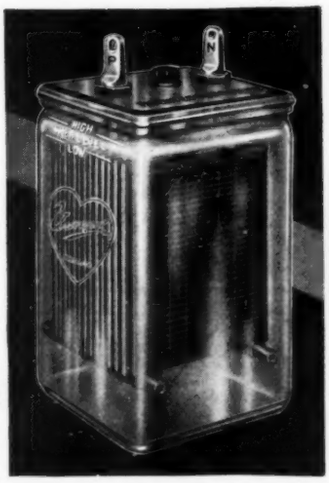

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Condensed Telephone News

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items Relating to Construction, Rebuilding, or Changes in Their Plants and Systems

New Incorporations and New Telephone Companies.

DOVER, DEL.—The United Public Utilities Co., Dover, to deal in electric light and power, telephone, telegraph and water companies has filed a charter through the United States Corporation Co. as agent. It is organized with 2,000 shares of common stock.

MCGREGOR, MINN.—With plans projected for the operation of light and power lines and the authority also to operate telephone systems, the R. P. Allen Co. has been incorporated to serve this region. Offices have already been opened in Pine City.

The company, capitalized at $1,000,000, proposes to serve McGregor, Lawler, Automba, East Lake, Kettle River and will extend supply lines to 15 towns in this region.

Officers are: J. J. Flynn, president; R. P. Allen, vice-president; N. K. Nelson, secretary; Stanley E. Hanson, treasurer, and H. G. Hammerstrom, manager.

KALIDA, OHIO.—At a recent meeting of the Kalida Mutual Telephone Co. it was voted to incorporate. The present officers are: William Gray, president: Frank Hoffman, Barney Foppe and Joseph Unverferth, directors; Mrs. Mollie Reynolds, secretary.

SALEM, S. D.—Articles of incorporation were filed with the secretary of state recently for the Sun Prairie Telephone Co. to operate a rural line out of Salem, with a capital of $3,000. Incorporators are F. M. Campbell, L. A. Eichman, E. J. Erickson, Daniel Fisk, and Harry B. Condett.

Elections.

WALLINGFORD, IOWA.—The directors of the Wallingford Telephone Co. held their annual meeting and reelected the same officers to head the company. The board of directors consists of: J. M. Wolden, president; S. T. Shiley, vice-president; J. H. Morrice, secretary and treasurer; Henry Egertson, Simon Paulson, Chris Jacobson and R. H. Dewall.

Construction.

DECORAH, IOWA.—Improvements and extensions costing nearly $125,000 will be made in Decorah by the Northwestern Bell Telephone Co. in connection with the construction of a new telephone building at Main and Court streets, it was announced recently by J. H. Rickels, local manager.

In addition to the construction of the new building, which was announced recently, the improvements will include changing the present magneto telephone system to a common battery system, installation of a new local switchboard, a new long distance switchboard, other new central office equipment and rearrangement of the company's outside plant.

ALTA VISTA, KANS.—The Farmers District Mutual Telephone Co. has contracted with J. W. Admire to replace its old open wire city distributing system with a complete underground cable system, making the city plant full metallic. The Burdett Telephone Co. will also put in an underground cable plant under the supervision of J. W. Admire.

The work will be completed some time this summer and will take 3,000 feet of cable and 7 terminals. A new main frame will also be installed to take care of the new cable.

OSBORNE, KANS.—The Central Kansas Telephone Co. will start soon to erect a new $15,000 telephone building at Osborne, it is stated.

MADISON, MINN.—The Central West Public Service Co. plans on spending $38,000 here in changing over its telephone system from the present magneto system to the common battery system. The company will erect a new fireproof telephone exchange building there if the change is made, it is said.

KINGDON CITY, MO.—Work started recently on erection of the telephone building here which will house voice amplifying equipment to be used on the St. Louis-Kansas City underground long distance telephone cable, it has been stated.

The building, with equipment for renewing the voice volume in long distance telephone conversation, will cost approximately $250,000, it was stated.

RULO, NEB.—E. H. Towle, president of the Southeast Nebraska Telephone Co., has announced that the Rulo telephone system will be rebuilt this summer. The Rulo exchange was recently acquired by Mr. Towle's organization.

FAIRPORT, N. Y.—The Rochester Telephone Corp.'s new exchange building here is practically completed and is occupied by operators and employes.

The structure, built to accommodate the new switchboard, measures 32 by 45 feet. A garage at the rear measures 21 by 20 feet. The outside of the building is red brick with light trim. The equipment is designed for an estimated growth of four years and includes a modern seven-position common battery switchboard.

The building itself is designed to ac-

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EVERETT MASS.

commodate 11 positions of switchboard and provides for an estimated growth over 25 years.

WAUSEON, OHIO.—The Northwestern Ohio Telephone Co. has just completed installation of a modern telephone exchange and the new system went into operation at midnight April 26. New directories have been issued by the company as all numbers and party line designations have been changed. The installation is of the automanual type.

MADISON, WIS.—Associated Telephone Utilities Co. will spend $2,505,261 on its expansion program in the Middle West this year, according to J. F. O'Connell, vice-president. The 1930 program for the whole country calls for the expenditure of about $5,000,000.

CAMERON, W. VA.—The Cameron Telephone Co. is making extensive improvements to its lines in this city. New lines are being strung and new poles placed and some poles removed.

Miscellaneous.

MAGNOLIA, ARK.—A proposition to install a common battery system in Magnolia offered by officials of Southwestern Bell Telephone Co. was recently accepted by the city council here. The company agreed to furnish new equipment, to begin the construction work immediately and to complete the work by January, 1931, or possibly sooner. The rates fixed were for one-party residence telephone $2.50; two-party, $2.50; four-party, $2; extension, 75c; one-party business telephone, $3.75; extension $1.

BELLEVILLE, ILL.—H. L. Fitzpatrick has been appointed manager of the Southwestern Bell Telephone Co., replacing R. C. Lloyd, who was transferred to Springfield, Mo.

CAMARGO, ILL.—Mrs. Laura Cox, operator at the local Independent telephone exchange, and her daughter, aged 16 years, stayed at their posts in the telephone building the night of April 4 until the flames drove them from the switchboard. They roused residents throughout the city to fight a fire which swept the entire business block with loss of $50,000, there being 25 buildings afire at one time. The telephone company loss was about $3,000.

TAYLORVILLE, ILL.—The suit of the stockholders of the Assumption Mutual Telephone Co. against the company's officers has been dismissed in the Christian county circuit court at Taylorville and a temporary restraining order against the officers has been dismissed.

Judge W. B. Wright returned the decision after having the case under advisement since last January. John H. Craig and other stockholders, all of Assumption, had sought to obtain control of the company, charging that the officers were managing the concern so as to depreciate the value of the stock, according to Attorney John McNutt of Mattoon, who represented the officers.

The temporary injunction restraining the officials from acting in their capacity was granted in February of 1928. Judge Wright held that the officials had not mismanaged the company and were not guilty of any irregularities.

DELPHI, IND.—Directors of the Carroll County Cooperative Telephone Association, composed of six exchanges—Yeoman, Rockfield, Deer Creek, Burrows, Camden and Cutler in Carroll county and Idaville and Buffalo in White county—bound themselves into an agreement and signed forfeiture pledges that soon will be recorded that will have the effect of keeping them intact and prevent sales to other organ-

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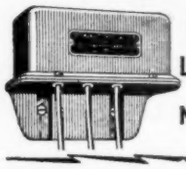
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izations that may desire to absorb them.

The action was taken at the annual meeting of the association held in Rockfield. Terms of the agreement provide that any one of the companies selling out is pledged to pay each of the other companies $500. Since there are eight organizations it means that the association violating the agreement would have to liquidate $3,500. The eight exchanges represent a total of 2,500 telephones, whose average rental is about $1 a month.

W. G. Million, Yeoman, was elected president; Earl Stewart, Burnettsville, vice-president, and Perry M. Byrum, Rockfield, secretary-treasurer.

ALBIA, IOWA—The Iowa United Telephone Co., which has extensive holdings throughout Iowa recently added additional property to its holdings. Sale of the H. S. Davis Co., Inc., of Fremont, owning and operating exchanges at Fremont, Cedar, Wright and Kirkville, to the Albia company was made public when the bill of sale was made of record.

BUSSEY, IOWA—The entire board of directors of the Bussey Mutual Telephone Co. was reelected at the company's annual meeting, but John McConnell resigned at once and I. E. Miller was selected in his stead. Following are the officers: J. T. Doughman, president; G. A. Visser, treasurer; and William Haywood, Ont Villont and I. E. Miner, directors.

LEXINGTON, KY.—The Fayette county fiscal court at a special meeting recently granted permission to the Lexington Telephone Co. to use the park plots on the Richmond road for placing its lines underground. The wires will be inclosed in a conduit.

In granting the permit the court stipulated in the agreement that the telephone company is to be responsible for any accidents that may occur during or as the result of the construction work; that the company is to replace the street and parkways in as good condition as originally found.

MARYSVILLE, KY.—The Flemingsburg Telephone Co., owned and operated as a home concern for many years, has passed into the hands of the Kentucky State Telephone Co., it was announced here recently. The purchase price was reported to be $75,000. The Kentucky State Telephone Co. also operates the Brooksville Telephone Co.

BOSTON, MASS.—At its regular monthly appropriation meeting April 10 the executive committee of the New England Telephone & Telegraph Co. authorized the expenditure of $3,737,835 for new construction and improvements in plant necessary to meet the **demand for service.** Including this authorization, the specific commitment of the company for plant expenditures this year is $28,397,428.

For Maine the appropriation aggregates $326,969; for New Hampshire, $108,143; for Vermont, $54,696; for Massachusetts, $2,877,106; for Rhode Island, $370,921.

Of the amount authorized $1,230,444 is appropriated for exchange lines, $67,211 for toll lines, $215,284 for central office equipment; $297,751 for station equipment, $88,749 for land, $750,869 for buildings and $1,087,531 to cover the total cost of hundreds of routine additions to plant in all parts of the company's territory during May.

ALLIANCE, NEB.—The Box Butte Telephone Co., of Alliance, with a capital of $3,000, has been incorporated by William Maclean, Lloyd Amsberry, Scott Clingenpeel, Lewis Freimuth and Charles Mracek. It will construct rural lines.

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A4, K1.
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Auditing and Accounting Systems
B11, C12, H6, S10.
Automatic Telephones
A9, A12, E5, K1, N2, S6.
Battery Charging Equipment
F1, G5, W7.
Batteries, Dry
B4, B14, F6, G1, N1, W9
Batteries, Dry, Radio "A," "B" and "C"
B4, F6, G1, N1.
Batteries, Flashlight
F6, G1, N1.
Batteries, Primary
W9.
Batteries, Storage
A14, E3, P9, U5.
Bells, Magneto
A4, G2, H5, K1, N2, S4, S10.
Belts and Safety Straps (Linemen's)
K3.
Blank Books (etc.)
F3.
Books, Telephone
M8.
Booths, Telephone
B16.
Cable
A5, B6, E5, H1, K1, R3.
Cable Compound
A7, N10, R2, R3, S10.
Cable Grips
M2.
Cable Rings
E4, N5.
Cable Splicing Joints
M6.
Cable Terminals
C8, G2, R2, S2.
Clamps, Ground (Plates, Cones)
G2, L2, P2.
Clamps, Guy
A7, C8, E4, G2, L2, M6, N5, R3.
Climbers
G2, C12, K3.
Clips, Cable
A4, G2, L2, M6.
Clips, Testing
F5, G2.
Condensers
A4, A9, G2, K1, L2, S9, W1.
Conduit, Clay
C6, N3.
Conduit, Treated
C13, G2, W6.
Conduit Rods
C9, G2.
Connectors, Test
C8, R2, S8.
Cords, Telephone and Switchboard
A4, A9, G2, K1, R5, S9.
Counters
V3.
Cross Arms
A4, A10, A11, G4, K1, W6.
Directory Publishing and Advertising Service
B7, W5.
Earth Boring Machines
F2.
Extension, Relays
K1, S4.
Engineers, Telephone
B1, C10, F4, J3, M4, P5, R4, S7, U4.
Financial Service
A8, C11, K2, M7, R4, T1, T8, U4.
Fire Pots and Furnaces
W4.
Furnaces, Lead Melting
L4.
Furnaces, Compound
L4.
Fuses, Mica
A4, C8, R2.
Generators, Ringing
G2, H5, K1, L3.
Guy Stretchers
H3.
Hangers, Cable
C8, E4, G2, K1, L2, N5, R2, S7.
Hoist and Guy Clamps
C3.
Induction Coils
A4, A5, K1, L3, M6, S3.
Instruments, Electrical Measuring
W1.
Insulators
H2, P2, U1.
Insurance, Fire and Employers' Liability
B10.
Intercommunicating Systems
A4, K1, S9.
Jacks, Pole
T2, W3.
Keys, Switchboard
A4, K1, L3, S9.
Meters (Electrical Testing and Measuring)
S8, W1.
Piers
C12, F7, K3.
Pole Erectors
F2.
Pole Line Hardware
A4, G2, K1, L2, N5, O1, S10, W3.
Pole Pullers
H3, T2.
Pole Markers
P3.
Pole Straighteners
H3, T2.
Pole Steps
G2, L2.
Poles, Treated or Plain
A2, A11, B3, C5, I3, L1, M1, N6,
P1, P3, P4, S5, T6, W6.
Printed Telephone Forms
F8, S10.
Protective Devices
C8, M3, R2, S2.
Radio Supplies
G2, K1, S9.
Rebuilt Telephone Apparatus
B15, P6, R1, S10.
Rectifiers
F1, G5, W7.
Relays, Loud Ringing, Calling Systems, Signals
K1, N2, S4.
Reels, Pay-out and Takeup
M6.
Remote Control Systems
N2.
Ringing Machines
H5, L3, T3.
Searchlight, Portable
N4.
Sleeves, Wire
C8, N5, R2, R3.
Soldering Supplies
K5.
Staples, Insulated
B9.
Switchboard, Lamps
N8.
Switchboards, Telephone
A4, A9, A12, E5, G2, K1, L3, N2, S6, S9, S10, W3.
Tanks, Portable
P7.
Tape (Splicing)
G2, S9.
Telephones
A4, A9, A12, E5, G2, K1, L3, N2, S6, S9, S10, W3.
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T4.
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Torches, Blow
B8, P7, W4.
Transmitters
A4, A9, G2, K1, L3, S9, W3.
Tree Surgeons
B12, C14, D1.
Tree Trimmers
G2, S3.
Trench Braces
T2.
Trench Diggers
C4.
Trucks, Motor
F2, I4.
Underground Specialties
C9, G2, N10.
Wire, Aeroplane
A4.
Wire, Copper
A3, A4, A5, A7, I1, K1, R3, S9, S10.
Wire, Enameled and Magneto
A5, A7, G2, H1, K1.
Wire, Galvanized Iron
A5, A7, G2, H1, I1, R3, P2, S10.
Wire Rope
A7, G2, R3.
Wire, Rubber Covered
A7, H1, W8.
Wire, Rubber Insulated
A2, A7, H1.
Wire, Twisted Pair
A5, G2, P2.
Wire, Weatherproof
A4, A5, A7, G2, I1, P2.
Wrench, Pipe Anchor
K4.
Zinc Meta Arsenite
C13.

The letter with accompanying number indicates the name of advertiser as given in full in the Alphabetical Index to Advertisers. *When making known your wants* to any company listed herein, pleases mention TELEPHONY.